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ORIGINAL LECTURES.

A COURSE OF LECTURES ON DERMATOLOGY.

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LECTURE IV.

SYCOSIS NON-PARASITICA; IMPETIGO; ECTHYMA; PSORIASIS; PITYRIASIS; DERMATITIS; PURPURA.

SYCOSIS NON-PARASITICA, sometimes called *sycosis* in contradistinction to *sycosis parasitica* (otherwise and preferably known as *tinea sycosis*), is a chronic, inflammatory, non-contagious disease of the hair-follicles, characterized by papules, pustules or tubercles, perforated by hairs, attended with more or less burning.

The area involved may be small or large, and the affection begins frequently in the form of small lesions, spreading from week to week or month to month until it may cover one or both cheeks. It is rare that the whole face is involved simultaneously. The lesions are, for the most part, discrete, the pustules inclining to be flat and little raised above the surface of the surrounding skin; while, when papular or tubercular lesions are interspersed, they are decidedly raised. The regions attacked are the cheeks, chin, upper lip; either one or all. It seldom runs an acute course, but continues chronic, often for years; even where the patch is small, the difficulty in curing it may be considerable. The burning sensation is sometimes marked. The causes are often obscure.

Its pathology is well understood, and the affection consists first of a peri-follicular inflammation, which soon extends into the hair-follicle, and develops finally into a pustule. The hairs are usually firmly seated, and cannot easily be extracted without giving pain.

In the matter of diagnosis it must be differentiated from tinea sycosis, which, as a rule, is not difficult. In the former the hairs are firmly seated, while in the latter they are readily extracted without pain. If extracted in the former, the root-sheath is also drawn out, and is often in a state of suppuration, while this is not the case in the latter, where the hairs are usually dry and sometimes brittle. Finally, in case of doubt, the microscope will reveal the characteristic fungus of tinea sycosis if this disease be present. It is distinguished from eczema in that the latter disease is not confined to the follicles, but is more diffused. There is besides, in sycosis, little discharge; the lesions do not rupture, but dry up. It occurs at all ages between twenty and sixty years, but is more common in early life.

External treatment is often more valuable than internal. In the majority of cases epilation is unnecessary. Some cases do well under mild treatment, as, for example, a lotion of black wash and oxide of zinc ointment; or sulphur ointment, one or two drachms to the ounce. Other cases call for vigorous applications of soft soap, followed by diachylon ointment. Oleate of mercury, five, ten or fifteen per cent. strength, is also useful. The treatment is similar to that of eczema of the chronic papular or vesicular variety. The hairs should be clipped and kept short. Shaving is useful in some cases, but is hurtful in others.

IMPETIGO.—This disease was formerly confounded with what is now recognized as the pustular variety of eczema. It may be defined as an acute inflammatory disease characterized by pea- or cherry-sized, discrete, rounded and elevated firm pustules, not attended, as a rule, with itching. It occurs in children, commonly about the face and neck, and is at times accompanied by slight malaise. The pustules are of a typical character, are whitish or yellowish, and show no tendency to rupture, but dry up, forming yellowish crusts. It may be distinguished from eczema by the fact that in the latter disease the lesions rupture and are attended with more or less itching; also from ecthyma, in which the lesions are considerably larger, with inflammatory areolæ, and occur for the most part on the lower extremities. From impetigo contagiosa it may be known by the different character of the lesions. The treatment is simple, and consists in the application of any mild stimulating ointment. The disease tends to spontaneous recovery in a short time.

Impetigo herpetiformis is a rare and severe disease occurring in both sexes, but especially in pregnant women. It is often preceded by malaise and even fever. The lesions are itchy and multiform, the disease generally taking on the vesicular or bullous form in this country. The herpetiform grouping of the lesions is characteristic. There are but few cases on record; almost all reported by Hebra were fatal. It must be differentiated from eczema, ecthyma, pemphigus, and impetigo contagiosa.

Impetigo contagiosa may be defined as an acute, inflammatory, contagious disease characterized by superficial vesico-pustules or blebs, with pale or dark yellowish crusts. The lesions are inclined to be flat, soon dry up and crust over. The disease runs its course in one or two weeks, appearing, generally, first upon the face, then upon the extremities, attacking children, and is apt to be mistaken for varicella. It rarely occurs in adults as a primary affection, but may be communicated from children having the disease. The contents of the pustules are auto-inoculable, but the cause of the disease is unknown. It is supposed by some to be due to a fungus, but this is denied by other observers. It is liable to occur in epidemics. Treatment is seldom called for, recovery taking place usually at the end of fourteen days or sooner. It must be distinguished from pustular eczema, impetigo, varicella, pemphigus, and herpes iris.

ECTHYMA is a common disease among the poor and neglected. It is an inflammatory affection characterized by large, flat pustules, which soon dry up and form brownish crusts. It occurs generally on the lower extremities, and yields to simple treatment, such as the application of a mild calomel or ammoniated mercury ointment, twenty grains to the ounce. It may be distinguished from syphilis by the absence of ulceration and loss of tissue.

PSORIASIS is one of the most important of the diseases of the skin. It may be defined as a chronic disease characterized by reddish, dry, inflammatory, more or less thickened patches, variable as to size, shape and number, and covered usually with abundant whitish or grayish, mother-of-pearl-colored, imbricated scales. The disease varies greatly as to the extent of its development, but as a rule its characteristics are well marked. It begins in small reddish spots, which soon become scaly. These increase in size slowly, or sometimes rapidly, and, as a rule, are sharply circumscribed. The degree of inflammation varies. Itching or burning, though not infrequently absent, may be annoying symptoms.

The different sizes and shapes of the lesions give rise to the several varieties of the disease; thus, lesions in the form of points, punctata; drops, guttata; coin shaped and sized, nummularis; circles tending to clear in the centre, circinata; and segments of circles, giving a serpiginous appearance, gyrata. Where there are large extensive patches without any special form, diffusa; where large parts of the surface, as the trunk or extremities or both, are chronically involved, inveterata. All regions of the surface may be attacked, but more specially the extensor surfaces and the elbows, knees, back, scalp, and forehead. The palms, soles, and nails may also be invaded. The face is usually exempt. It is non-contagious, and as a rule is found in strong, plethoric, and otherwise healthy subjects rather than in the debilitated. The disposition to its development is sometimes inherited. It never attacks infants, and only rarely appears before the age of eight, and, as a rule, not before fifteen or twenty. It occurs in both sexes nearly equally, and is more common in northern climates. In ten thousand cases of diseases of the skin collected by McCall Anderson, of Glasgow, seven hundred and twenty-five were of psoriasis. It may also be associated with a gouty or rheumatic state.

Pathologically, the disease consists of hyperæmia with hyperplasia of the epidermis, with secondary inflammatory changes in the corium, resulting from pressure. It must be distinguished from eczema, syphilis, tinea circinata, and lupus erythematosus. The sharply defined outline of the lesions, and the presence of the characteristic pearly scales, are usually sufficient to establish the diagnosis.

As to treatment, the constitution and the general condition of the patient must be taken into consideration; also the question as to how much time the patient can devote to the disease, and whether the patient is a child or an adult. Arsenic is our most valuable remedy, and it should be used judiciously and for a long period. Fowler's solution, given in two or three minim doses to an adult for months, will cure many cases. There are, however, examples in which arsenic will aggravate the disease. In these cases sometimes phosphorus, phosphide of zinc, carbolic acid, and tar capsules will prove useful. Also alkalies, as liquor potassæ, ten to twenty drops three times daily, freely diluted. This latter remedy is most useful in many cases.

Local treatment is also of great value. Applications of sapo mollis, or of an alcoholic solution of soap, followed by baths, will often be found useful. Alkaline baths must also be mentioned as serviceable adjuvants in the treatment. In highly inflammatory cases, inunctions with olive oil will sometimes prove efficacious. The most generally useful remedy is tar, in one form or another. Tar ointment is one of our most reliable remedies. Oil of cade, pure or with alcohol, one to three drachms to the ounce, applied with a brush; liquor carbonis detergens; liquor picis alkalinus; oleate of mercury; ointment of the nitrate of mercury; white precipitate ointment; and pyrogallic acid, are all excellent remedies. Chrysarobin is very valuable. It should always be used with caution. It is liable to set up dermatitis of the surrounding skin. It stains a purplish or mahogany color everything with which it comes in contact, and this is its disadvantage. Still, it generally has a very happy effect on the lesions, often curing them rapidly. It is best applied in the following form:

℞.—Chrysarobini, ... ℥j.
Liq. guttæ perchæ, ... f℥x.—M.

Sig.—To be painted on the lesions after the scales are removed. By this means it is held to the lesions, and is less liable to stain. It may also be applied as an ointment, in the strength of from fifteen grains to one drachm to the ounce.

PITYRIASIS RUBRA is a rare disease, having much resemblance both to psoriasis and to squamous eczema. It is an inflammatory disease involving usually the entire surface of the body, and is characterized by deep-red coloration and abundant and continuous exfoliation of the epidermis in the form of large, thin, whitish scales. The disease lasts for months or years, often relapsing from time to time. The uniform red coloration, together with the rapid and abundant exfoliation in the form of extremely thin flakes, with curled-up edges, is characteristic. Treatment in most cases has little effect upon the course of the disease. Internally, arsenic is indicated, and locally mild, non-stimulating ointments may be employed.

Pityriasis rosea is a rather rare disease which has recently received attention from observers. It is inflammatory, occurring chiefly on the trunk, and is characterized by discrete or confluent macules, or, rarely, maculo-papules, varying in size from a pea to a silver quarter- or half-dollar. The lesions are furthermore rounded or ovoid; of a rosy, pale-red or red color; later becoming yellowish or brownish, pigmented and scaly, accompanied by but little thickening of the skin. The scaling is usually furfuraceous. It is non-contagious, non-parasitic; may run an acute course in a few weeks, or, what is much more common, last for months. It is, as a rule, unaccompanied by itching or other subjective symptoms. The disease was not recognized in this country until a few years ago, when Dr. Duhring called attention to its distinctive features. From psoriasis and syphilis it is distinguished by the absence of infiltration, and from tinea versicolor by the absence of fungus. Some French writers claim that it is a parasitic disease, but in none of Dr. Duhring's

cases was a fungus found. It runs a benign course, and tends to spontaneous involution. It does not seem to be influenced much by treatment.

DERMATITIS signifies a simple inflammation of the skin without reference to cause, due to such external agencies as heat, cold, cutaneous irritants, caustics, etc. The lesions vary with the cause, the extent of exposure, etc., and may be circumscribed or diffused. The clinical signs of inflammation are heat, swelling, pain, or itching or burning, which are present in varying degrees of intensity.

Dermatitis exfoliativa is a rare affection, and has been described under numerous titles, such as "general exfoliative dermatitis," "recurring exfoliative dermatitis," "desquamative scarlatiniform erythema," "recurrent acute eczema," "acute general dermatitis," and "recurrent exfoliative erythema." There is a great diversity of opinion as to the true nature of the disease. It must be distinguished from eczema, psoriasis, pityriasis rubra, and pemphigus foliaceus. The disease is accompanied with more or less febrile disturbance, and is characterized by localized or generalized acute erythematous, more rarely vesicular or bullous, inflammation, followed by a variable degree of desquamation or exfoliation of epidermis. There is also a tendency to relapse.

Dermatitis traumatica is produced by direct violence, contusions, irritating articles applied to the skin, and excoriations due to the presence of parasites, the latter being generally accompanied by pigmentation.

Dermatitis venenata is a characteristic inflammatory condition caused by contact with poisonous substances. Among the most common causes are the Rhus plants commonly known as poisonous sumach, or dogwood, and poison ivy, or oak. This eruption occurs for the most part about the hands, forearms, face, lower extremities below the knees, and genitalia, and consists of a diffuse erythema, with more or less œdema, accompanied by the appearance of vesicles, blebs, and pustules. Other causes are nettle, arnica, mezerion, goa-powder, mustard, cantharides, hartshorn, croton oil, etc. The eruptions all run an acute course, and vary in intensity in proportion to the susceptibility of the individual. Some persons may handle the poisonous plants with impunity; others again, on the slightest contact, become affected with the eruption. Some authorities contend that the affection is an eczema, but the lesions are different, being multiform, angular, and having a tendency to remain intact, while those of eczema are rounded, soon rupture, and become covered with exudation and crusting. The treatment is simple and satisfactory, external applications alone sufficing. A lotion of black wash, followed by oxide of zinc ointment, or the fluid extract of grindelia robusta, one drachm to two or four ounces of water, are valuable. The lotions are to be dabbed on every two or three hours. Lotions of the hyposulphite of sodium, one drachm to the ounce of water, or sulphate of zinc, two to five grains to the ounce, are also useful.

Not infrequently violent dermatitis is produced by aniline and coralline dyes of undergarments and stockings. Inflammations may also be provoked by individuals upon themselves, with a view to excite sympathy, with nitric acid, which gives rise to a bullous eruption; also with hartshorn and other substances. These are entirely artificial, and are known as "factitious" or "feigned" diseases of the skin.

Dermatitis calorica is an inflammation caused by extreme degrees of heat, and of cold, as in frost-bite.

Dermatitis gangrænosa is an obscure disease of the skin, occurring in the form of circumscribed or diffused patches of gangrenous skin, which, after a variable course, separate as a slough. It is usually accompanied by febrile symptoms, and may terminate fatally.

Dermatitis medicamentosa. Under this head are classed certain kinds of eruptions which may follow the ingestion of a number of remedies in common use. Thus quinine, belladonna, chloral, salicylic acid, and mercury may give rise to an erythematous efflorescence; bromide and iodide of potassium, as a rule, give rise to pustular eruptions, resembling acne, except as to distribution. The lesions are scattered over the body, and are situated around the sebaceous glands, from which the bases of the remedy are eliminated. Copaiba, also, sometimes causes a cherry-red or violaceous erythematous or papular eruption.

HÆMORRHAGIÆ, in mild or extensive form, are met with, from time to time, in the corium. They occur through diapedesis or as an extravasation, and are divided into two classes: idiopathic, or those resulting from external injury, as from wounds, contusions, bites of insects, as the flea, pediculus, etc., and symptomatic, or those which occur as a manifestation of internal disease, *e. g.*, purpura. The characteristic of the lesions of purpura, as distinguished from inflammatory lesions, is that the former do not disappear under pressure.

PURPURA may be defined as consisting of variously sized and shaped, non-elevated, smooth, reddish, hemorrhagic patches, persisting under pressure. There are three varieties:

Purpura simplex consists of small, pin-head-sized lesions, usually occurring on the lower extremities, especially upon the flexor surfaces of the thighs. They make their appearance suddenly, and are accompanied by little or no constitutional disturbance. On disappearing, they leave pigment residue of a yellowish, greenish, brownish color.

Purpura rheumatica is preceded by malaise and rheumatic pains in the joints, especially those of the lower extremities. The eruption makes its appearance suddenly or gradually, and consists of pale-red or reddish spots, varying in size from a split pea to a finger-nail, and are, as a rule, more marked about the arms and legs. It persists a few weeks or months, new lesions appearing from time to time, and as it fades away, the lesions change color, assuming a yellowish, greenish or brownish hue. It must be distinguished from papular syphilis.

Purpura hæmorrhagica, also called land scurvy, is often preceded by constitutional symptoms of a marked character, such as weakness, loss of appetite, headache, and general malaise. The eruption usually appears first upon the extremities, and soon extends upon the trunk, and consists of variously sized, irregular, hemorrhagic spots. Simultaneous with the eruption upon the surface, hemorrhages may occur in other parts, as in the mouth, bowels, etc. The disease may last for days or weeks; it may relapse, and may end fatally. It occurs in children and adults, and is not attributed to

bad hygiene or want of vegetable diet, occurring in the strong as well as in the weak.

Among remedies, electricity may be mentioned, which in some cases has proved useful. Ergot, iron, and quinine are all valuable agents. Attention must also be given to diet, which should be as nutritious as possible. Rest should be enjoined, and a horizontal position be maintained.

ORIGINAL ARTICLES.

TRACHEOTOMY IN CROUP.[1]

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THE mortality in croup is so great, and the results of all kinds of treatment are often so unsatisfactory, that many members of the profession entertain the opinion, that all their efforts are powerless to save life, or to give even temporary relief. This statement applies especially to the operation of tracheotomy. Always an anxious, and oftentimes a difficult one to perform, requiring the most intelligent, skilful, and unremitting care in the after-treatment, yet it has given more relief, and saved more lives in pseudo-membranous laryngitis than all other remedial measures. Not infrequently the operator will meet with accidents, and occasionally may lose a patient upon the table, yet he may rest assured that, in the long run, he will do more good than harm, and that he will save some lives which would probably have been lost had he not interfered.

It will be the object of this paper to show from the records of the Boston City Hospital for the past twenty years, and from other sources, that the results of this operation are not as unsatisfactory as has been supposed; that surgical treatment offers a better prospect of success, than any other; that a fair proportion of the patients can be saved; and that many more can be greatly relieved by a timely resort to this measure.

The term croup is used here in its generic sense, as meaning an acute laryngeal obstruction to respiration, due to the presence of a false membrane.

Two varieties come to the notice of the surgeon: the membranous and the diphtheritic. The false croup so common in young children can usually be recognized from the fact that it occurs suddenly, and in the night, is paroxysmal, of short duration, less severe in character, yields readily to treatment, and seldom, if ever, terminates fatally. Acute catarrhal laryngitis of adults is not a common affection. The symptoms resemble those of the membranous disease, and may require surgical interference.

As a correct diagnosis of the two kinds of laryngitis under consideration is thought by many to be of great importance in regard to the prognosis and treatment, I may be pardoned a few words upon the subject.

The profession has always been, and still is, divided upon the question of the identity of membranous and diphtheritic croup; one portion claiming that the former is purely a local, and the latter a constitutional disease; while the other portion, with equal tenacity, assert that they are essentially one and the same affection, under different manifestations.

The writer takes the ground that membranous croup is a distinct and separate disease from diphtheria, for the following reasons: It is not contagious; it is a local lesion confined to the air-passages; it causes death by mechanical means; it never results in systemic infection; it has never disappeared from notice for long periods of time, and over a large extent of territory, as has diphtheria.

Much of the confusion that exists upon this question is due to the fact that authorities are not agreed as to what group of symptoms shall constitute either malady. Dyspnœa is the prominent and important symptom common to both. Glandular enlargements, nasal discharges, albuminuria, and paralysis are the distinguishing features of diphtheria, and cases presenting any of these characteristics should not be called membranous croup.

The older members of the profession, who have had opportunities of studying croup at a period when diphtheria was unknown in this country, and whose opinions are entitled to the greatest respect, recognize the marked clinical distinctions between the two affections. The writers of that time generally deny the existence of contagion, and say nothing about glandular complications, or other symptoms of blood-poisoning. The croup of these days was a purely suffocative affection, and it is not reasonable to suppose that a disease of so grave a character as diphtheria should have shown itself in this country for seventy-five years as simply a local, non-contagious laryngitis, and not have presented its most prominent feature, namely, septicæmia.

It is stated by some authorities that an exudation upon the fauces necessarily indicates diphtheria; and that the cervical glands are not implicated while the membrane is confined to the larynx, because of the peculiar distribution of the lymphatics. Dr. John Ware, who wrote a most admirable monograph on croup in 1842, long before diphtheria had made its reappearance in America, reports the presence of an exudation in the pharynx in seventy-four out of seventy-five cases examined with reference to that point. He says nothing of enlarged glands, nasal discharge, or other septic symptoms, as so keen and reliable an observer would certainly have done, had they existed. It is not consistent with the history of diphtheria, that it should have occurred so many times in the practice of Dr. Ware and his contemporaries, without presenting some of its constitutional symptoms.

Fatal cases of diphtheria in which the larynx is not affected are common. Idiopathic croup, on the contrary, is invariably a laryngeal disease, is confined to the air-passages, and causes death by suffocation. In short, membranous croup is simply that, and nothing else; while diphtheria, though occasionally attended with croup, is always something more.

Although I am aware of the fact that a majority of the cases of croup of late years are diphtheritic, and that in exceptional cases it may be difficult to make a differential diagnosis, yet I submit the fol-

[1] Read before the American Surgical Association, May 2, 1884.

lowing statements as the result of my experience and study of the subject:

First. There is an acute, non-contagious disease of the larynx, characterized by the presence of false membrane, which causes the principal symptom, dyspnœa; and often destroys life. This is membranous, or idiopathic croup, and is of rare occurrence.

Second. There is an acute, contagious affection presenting a similar exudation in the larynx and other localities, accompanied by symptoms of blood-poisoning, such as enlarged glands, nasal discharge, albuminuria, debility, and coma. This is diphtheritic or secondary croup. For twenty years it has been the prevailing type in the United States, and it is very fatal.

Third. There are occasionally fatal cases of acute laryngeal stenosis, in which no membrane is seen during life or at the autopsy. As thickening and œdema of the mucous membrane are present in these cases, they are probably of the same nature, and require the same treatment, as the membranous form.

But while a doubt may exist in the minds of many as to the character of these affections, there can be none as to the duty of the practitioner. It is for him to study the condition of the patient, rather than the name of his malady. The treatment should be based upon the symptoms presented, and not upon a disputed theory of the nature of his disease.

Surgical interference is often necessary to relieve the difficulty in breathing, and, in the opinion of the writer, the cases of probable membranous laryngitis, attended with severe and increasing dyspnœa of over twenty-four hours' duration, are rare, in which the patient, whatever may be his general condition, should be refused the benefit that may result from opening the trachea. It is of the first importance that the mechanical obstruction to respiration should be removed at the earliest moment possible.

Before resorting to any operative measures, it is always well to form some idea of the probable result of the case, if it be allowed to proceed without them. The evidence which I have been able to gather touching the results of the medical treatment of croup, is somewhat conflicting, as will be seen by the following remarks:

Meigs and Pepper report fifteen spontaneous recoveries in thirty-five cases of pseudo-membranous laryngitis, mostly of the diphtheritic variety. Dr. J. Lewis Smith, in twenty-one cases of diphtheritic croup, has had seven successful results without an operation. In speaking of idiopathic croup, Dr. Agnew says: "I am of opinion that, with American practitioners, the recoveries without operation are at least fifty per cent." Dr. Ware's statistics show that thirty cases out of thirty-three, treated by the expectant method, terminated fatally. He did not make use of the depressing treatment, which was in vogue at that time, but relied upon opium, calomel, and steam.

Dr. Cheever, Professor of Surgery at Harvard University, writes as follows: "After reflection, I cannot recall a case of membranous laryngitis that I have known to recover without tracheotomy."

As the result of written inquiries of about thirty prominent practitioners in New England, I have heard of the recovery of between thirty and forty cases under medical treatment, which is a small proportion of cases observed. One physician reports seven cases; another four, another three; several had never seen a case of spontaneous recovery, and they all agree that such results are rare. These gentlemen have been in practice for a period of from thirty to sixty years.

Upwards of four hundred cases of diphtheria have been admitted to the Boston City Hospital during the past eight years. Forty of these patients, suffering from undoubted diphtheritic croup, as indicated by the presence of membrane, glandular enlargements, dyspnœa, and cyanosis, received medical treatment only, and every one died. *Not a single case of pseudo-membranous laryngitis has ever recovered in this hospital without an operation.* In the light of such evidence, I can but conclude that the expectant plan of treating croup is far from satisfactory. On the other hand, the results of the operative treatment are much more encouraging.

The formidable array of statistics given to the profession through the arduous labors of Cohen, Mastin, and others, comprising over eleven thousand operations as collated by Dr. Agnew, prove that from one-quarter to one-third of the cases of tracheotomized croup recover. Cohen reports one hundred and ten successful results out of one hundred and sixty-six cases, mostly in private practice. Drs. Jacobi, Voss, Krackowizer, and von Roth saved fifty out of two hundred and thirteen. Of seventy-nine operations performed by surgeons in Philadelphia, nineteen were successful. Dr. John H. Ripley, of New York, has had thirty favorable results, in one hundred operations. The writer has performed tracheotomy sixty-two times for croup, with twenty recoveries. Twenty-one of these operations were performed in 1883, of which ten were successful. Fifteen cases were in private practice; only one recovered.

Tracheotomy for this disease has been performed one hundred and eighteen times at the Boston City Hospital during the past twenty years. Thirty-nine, or one in three, were successful. That the cases were not selected, is conclusively shown by the fact that three patients died during the operation from shock and exhaustion, not from hemorrhage; thirty-four died within twenty-four hours; and fifty-six, or more than one-half of the fatal cases, within forty-eight hours. Four, if not five, of the successful cases were practically moribund at the time of the operation.

While the records are not sufficiently complete to enable me to give the exact number belonging to each class, yet the diphtheritic variety largely predominated.

The ages of these patients ranged from nine months to forty-one years. The youngest to recover was eleven months; the oldest, sixteen years. Four aged two years, and five aged three years got well.

Membrane was visible in the fauces or trachea in a large proportion of both the successful and unsuccessful cases. Its absence was noted in only three of each class. It need not be said, that in every instance there was present severe, constant, and

increasing dyspnœa, exhausting the strength and threatening suffocation.

As a rule, the operation was followed by marked temporary relief; and in many of the fatal cases the difficulty in respiration did not return until the patient was comatose from blood-poisoning, and hence beyond suffering. In a few instances the smaller air-tubes were so extensively invaded by the deposit that no benefit resulted from the procedure.

A large majority of the patients had received appropriate medical treatment previous to entering the hospital, and were only sent there when it had become evident that an operation was the only alternative. It follows, of course, that many of the cases were in a most deplorable condition. It is the rule with us, however, to open the trachea at once, if there is the least prospect that the patient will survive it, and in more than one instance the result has justified the practice. For example, a child came under my care last winter, suffering from malignant diphtheritic croup. There were present faucial exudations, glandular enlargements, foul nasal discharge, dyspnœa, cyanosis, and impending coma. There did not seem to be the slightest chance for success, yet, after some hesitation, the operation was performed. Immediate and entire relief followed, and the child recovered. So many of these desperate cases have been saved at the last moment by different operators, even resuscitation having been followed by success, that a resort to this measure is advisable under almost any circumstances.

In view of the natural antipathy entertained by the public against a surgical operation, it is fair to conclude that few, if any, patients are subjected to this one, until a reasonable trial of other measures has been made; and hence it must be the rare exception that a tracheotomized patient would have recovered without it.

Again, taking into consideration the fatal character of the affection, the unsatisfactory results of the expectant treatment, and the impossibility of determining the cases which would recover spontaneously a resort to this measure is justifiable in urgent cases even if the diagnosis is doubtful. Waiting for a clear diagnosis is, in some instances, simply waiting for an autopsy.

The advantages of an early tracheotomy are, that the patient is better able to undergo it; the strength is preserved, more nourishment can be taken, and more sleep secured; time is gained, in which it may be hoped that the disease will run its course; and finally, it seems reasonable to suppose, as is claimed by some writers, that it tends to prevent those pulmonary complications so common in the later stages of the disease. Other things being equal, early operations will probably give better results than late ones.

Little need be said here as to the best method of performing tracheotomy. Every operator of much experience gradually acquires one of his own. I learned long ago to be chary of the use of ether in these cases, as it may impede or suspend the respiration, and it often increases the shock and prostration. The pain is not very severe, and usually ceases as soon as the skin is divided. With good assistants, the operation can be safely performed in a majority of instances without an anæsthetic.

Having performed the high and low operation many times, I have come to prefer the former because the trachea is more easily reached, there is less danger of hemorrhage, and it is more easily controlled, there is less liability to abscess and emphysema, and because nothing is gained by opening the trachea an inch or so lower, as the obstruction, if present, is at or below the bifurcation. I do not hesitate to divide the cricoid cartilage, or the isthmus of the thyroid gland, and have never seen any harm result from so doing. The trachea is secured with a tenaculum before being incised, thus avoiding the danger of missing it, or of losing sight of the opening, mishaps which are embarrassing, and not uncommon. A moderate sized silver tube with a movable shoulder is always used. This has been worn in the above cases for periods varying from five days to two or three years. None of the patients have been compelled to wear it permanently.

I have found the most satisfactory method of getting rid of the tube to be as follows:

About a week after the operation, if the respiration is free and easy, the canula is quietly removed, and the patient is left undisturbed. No trials are made to ascertain if he can breathe through the larynx. As the wound in the trachea contracts, respiration by the natural channel is gradually reëstablished.

I have never seen a patient die from hemorrhage during this operation, either before or after the trachea had been opened, and I do not think it has ever occurred at the City Hospital. Should respiration become impeded by the presence of blood in the bronchi, we are directed by some authorities to apply our mouth to the wound, and suck it out, or to do so by means of a catheter, or other tube.

Nature gets rid of offending substances in the air-passages, by means of forcible expirations, or cough, and we should try to imitate her. The writer has been called upon to clear the bronchial tubes of blood under the following circumstances: A young man was brought to the hospital, who had shot himself in the mouth, the ball lodging in the back of the neck to the left of the spinous processes. The patient having been etherized, an incision was made, and the bullet was readily extracted. At that moment, however, his face became livid, and he ceased to breathe. The trachea was immediately opened, a large catheter introduced, and air was forcibly blown into the lungs, with the result of driving out a large quantity of blood.[1] Respiration was soon reëstablished, and consciousness returned. The ease and rapidity with which the blood was ejected from the bronchial tubes was as surprising as it was satisfactory.

It is a physical impossibility to suck anything out of the trachea, unless air has a free ingress to supply the vacuum. Forcible distention of the lungs through a tube is attended by a return current of air, the velocity of which is in direct ratio to the power exerted. This effect is much more readily obtained by strongly inflating the lungs, than by suction.

[1] The source of the hemorrhage was from a wound in the vertebral artery; it did not recur, but the patient died of pleurisy in a week.

Furthermore, in cases of croup, whether contagious or not, no one is called upon to risk his life in trying to suck out the contents of the bronchial tubes. Too many valuable lives have been sacrificed in that way, and in view of the fact that there are other and better methods of accomplishing the object, the plan should be totally abandoned. Forcing air into the lungs from the mouth of the operator is rapid, efficacious, and comparatively safe; trying to empty the bronchial tubes by suction is always dangerous, and rarely successful.

Next to nourishment, I consider steam to be the most important factor in the treatment of these cases. So essential is this agent in my opinion, that I have repeatedly refused to operate in private practice, when it was impossible to obtain a sufficient supply. At the hospital the pipes are tapped, and the steam is conducted through a rubber tube, attached to a frame on castors, and directed upon the throat of the patient. The severe cases are made to inhale it constantly, with the result of softening the secretion, quieting the cough, and often relieving the dyspnœa.

Neither medicated nor atomized fluids have been used of late for inhalation. The effects obtained from the use of warm steam seem to be as beneficial as they were when lime-water, carbolic acid, etc., were in vogue.

It is desirable that two efficient nurses should be in attendance, one to relieve the other, who have had special training, and who are able to remove and replace the outer canula, and clear out the trachea in an emergency. It is not safe to leave these patients in charge of inexperienced friends, while the overtasked nurse is getting her sleep. In short, the service of the sick-room should be quiet, regular, intelligent, and untiring.

In conclusion, I would briefly mention the following reasons for resorting to tracheotomy in membranous laryngitis.

The disease is always dangerous, and very often fatal.

The results obtained from medical treatment alone are extremely unsatisfactory.

Tracheotomy gives more relief, and saves more lives, than any other method of treatment known to the profession.

It seldom hastens death, and still more seldom causes it.

Finally, it affords the friends the great and lasting satisfaction of knowing that everything possible has been done for the patient.

ETHERIZATION BY THE RECTUM.

BY BERNARD PERSH, M. D.,
HOSPITAL STEWARD, U. S. A.

THE observations of Dr. Daniel Mollière, surgeon of the Hôtel Dieu, at Lyons, on the method of administering ether by the rectum, published in the *Lyon Médical*, of March 30, 1884, have attracted considerable attention on this side of the Atlantic, and this novel way of producing anæsthesia has been tried in several of our large cities during the past few weeks. Much was expected of the new method, and it was believed by some that it would form a new era in the administration of ether, but the cases in which it has been tried, and the results of which have been published, do not warrant such conclusions at the present time.

In looking over thirty cases in which ether had been given by the rectal method it was found—

Largest quantity of ether given, six ounces; smallest quantity, one and one-half ounces; average, 2.91 ounces.

Minimum time consumed in producing anæsthesia, three minutes (child eight months old); maximum time, thirty-two minutes; average, thirteen minutes.

In twenty cases anæsthesia was produced and maintained by the rectal method only.

In ten cases the inhaler was used in addition to the rectal tube.

Diarrhœa was observed in ten cases, the number of passages varying from three to fourteen; five of these cases had bloody stools, one proved fatal. No diarrhœa in twenty cases.

Stage of excitement absent in sixteen cases; mild, short, or light in seven cases; moderate in five, violent in two.

Vomiting took place once during or after operation in fourteen cases; no vomiting in sixteen cases.

The advantages of the new method appear to be that it reduces the state of excitement, makes vomiting during and after administration much less liable, requires less ether, and offers ready means to estimate the amount given. To patients who have taken ether on previous occasions, the rectal method appears to be more acceptable, since the disagreeable odor of the ether, as well as the feeling of suffocation, is entirely absent. Its adaptation to operations on the neck, face, and head appears to be very prominent.

The objections to the method are that the time necessary to produce anæsthesia is greatly prolonged; that diarrhœa and irritation of the rectum seem to be quite common; and that in some cases inhalation is necessary to produce the desired result. In three cases the effects of the ether were greatly prolonged, and insensibility continued from twenty to thirty minutes after removal of the rectal tube. In one case an hour elapsed before consciousness gradually returned by the use of stimulants hypodermatically and the hot air bath. There seems to be no ready means to relieve the prolonged anæsthesia in such cases. While by the old method the anæsthetic agent can be quickly withdrawn by the removal of the inhaler, or towel, it appears almost impossible to expel the unabsorbed ether vapor from the intestines.

The apparatus employed in the majority of cases consisted of a graduated vessel, or bottle, with perforated cork containing two short glass tubes, one a funnel-tube supplied with stopper, and the other connected by about two feet of rubber tubing with a vaginal nozzle of a Davidson's syringe, or a rectal tube. The bottle contained the ether and was immersed in a pitcher filled with water, so hot as to be uncomfortable to the hands, or of a temperature varying from 110° to 140°. In repeating the experiments with an apparatus similar to the above, it became at once evident that something was re-

quired to complete the arrangement, and to indicate whether the process of evaporation was progressing favorably, or whether there was any resistance or obstruction in the tube, or at its outlet. A long U-shaped funnel-tube, the trap of which was filled with ether, and the long end of which reached to the bottom of the vial, was, therefore, substituted for the short tube with the desired result. Any condensation of ether within the conducting pipe, or nozzle, or any other obstruction preventing a free escape of the vapor, as well as too rapid evaporation, being at once indicated by the movement of the ether in the funnel-tube. In renewing the water in the pitcher by simply pouring out some of its contents, and substituting hot water from the top, the apparatus was not only disturbed, but the evaporations of ether became for a short time very rapid, and unequal, owing to the hot water coming directly in contact with the bottle. To this cause may possibly be ascribed the fatal result following anæsthesia by the rectal method in a child eight months old. To amend this defect, a teapot, made of delf-ware, and holding two quarts, was substituted for the pitcher. The colder water was drawn off by a siphon from the bottom of the vessel, and hot water added through the spout, thus favoring gradual rise of temperature. An apparatus of this kind could be made of tin, or any other metal, but it should be constructed on the same principle as a water-cooler, in order to retain heat as much as possible, which is a very important point.

In using this arrangement it was found that at a temperature of 150° two ounces of ether were evaporated in eleven minutes, at 140° in sixteen minutes, at 130° in twenty minutes, at 120° in twenty-four minutes, and these results were only to be obtained by keeping up a steady temperature. The flow of the vapor at temperatures varying from 125° to 140° was steady, and it could be seen to issue, or fall with some force from the opening of the vaginal tube, which formed the end of the conducting pipe. Rubber bags were distended rapidly and equally by the vapor, and the completion of the distention was readily indicated by an upward movement of the ether in the funnel-tube. By allowing the temperature to fall below 115° the distention of the bags was considerably slower, and the vapor lost its power of expansion almost entirely when generated by a temperature of 105°. Of course, the ether continued to boil until the temperature of the water fell below 98°, but most of the vapor produced at a low temperature was condensed before it reached the bags. The bags were kept in warm water at a temperature of 99° to 100°. However well managed, condensation of ether vapor will take place, and this cannot be prevented, excepting the tubes are kept at a temperature above the boiling-point of ether, say 100°. If condensed ether is forced into the rectum, it must produce a burning sensation, and may possibly be the cause of irritation, To prevent this as much as possible, the tube might be removed from time to time, and emptied, or, what is better, the condensed ether might be allowed to escape from a tube, closed by a stopcock, and inserted into the side of the rectal tube, just below where it projects from the rectum. That end of the tube of a self-injecting syringe which serves for the attachment of the nozzles, is usually made with two openings, and answers the purpose admirably.

An earthen vessel of a conical shape, and holding two quarts of water of 130°, will lose about 5° every ten minutes, and it will, therefore, be necessary to add hot water every five minutes, if a nearly steady temperature is to be maintained.

It seems that the method of giving ether by the rectum must be carefully watched, and the thermometer should be frequently consulted. In looking over the cases which have been reported, it is found that in one case, in which the administration was followed by five bloody stools, four ounces were given in twenty minutes, at a temperature varying from 140° to 120°. Experiments prove that a steady temperature of 152° is required to evaporate four ounces of ether in that space of time. In three other cases in which the hand was used to indicate the temperature, anæsthesia was maintained for half an hour after discontinuing the ether, and two of the cases were followed by diarrhœa. The safest temperature is probably between 130° and 120°, and the gauge as well as the distention of the rubber bags indicated that the vaporization of the ether and its expansive power are very steady and gradual at these temperatures. By commencing with the higher temperature, and allowing the process to proceed without the addition of hot water, it was found that two ounces of ether could be evaporated in twenty minutes, and this quantity seems to be more than sufficient to produce complete anæsthesia by the rectal method.

These remarks may appear to be too specific in some instances, but it is believed that the experiments above described will be of practical value in further trials of the new method, and it should be remembered that success in most cases is only to be obtained by paying careful and close attention to details.

THE FRANKFORD ARSENAL, PA.,
May 20, 1884.

MEDICAL PROGRESS.

INJECTIONS OF CITRATE OF IRON IN CHLOROANÆMIA.—*El Siglo Medico* recently published the description of an interesting case of chloroanæmia cured by hypodermatic injections of citrate of iron. The patient had presented symptoms of chloroanæmia since 1879, and had become excessively reduced in weight. It was determined to give dilute hydrochloric acid in gtt. viij doses, and, at the same time, hypodermatic injections of citrate of iron in the proportion of gr. xxx to ʒv of water; ♏xv to be injected in different parts of the body every day. After forty injections the morbid phenomena disappeared, and the patient had gained over twenty pounds.—*O Correio Medico de Lisboa*, March 15, 1884.

DIVULSION OF THE PYLORUS.—On June 9th, this operation was performed, for the first time in Venice, by DR. S. C. BASILIO FRATTINI. Thus far the patient has done well.—*Gazz. degli Ospitali*, June 18, 1884.

THE TREATMENT OF ASIATIC CHOLERA BY INHALATIONS OF OXYGEN.—Reports from Toulon state that resort is being made to inhalations of oxygen in the treatment of cholera now epidemic in that city. In connection with this matter, it may be interesting to cite the following from *A Treatise on Inhalation*, etc., by Dr. J. Solis-Cohen, of this city, first edition, Phila., 1867, pp. 194, 195:

"In the 'Reports on Asiatic Cholera in the Madras Army, from 1828 to 1844,' by Samuel Rodgers, London, 1848, the inhalation of oxygen is spoken of favorably.

"Dr. Wittemeyer, of Nordhäusen (*Deutsche Klinik*, Oct. 13, 1866, p. 306), has suggested the inhalation of oxygen and of the vapor of water, in the stage of asphyxia in cholera. He is led to the employment of these inhalations because the functional activity and absorbent powers of the alimentary canal being impaired, there remains open to us but the respiratory tract by which to convey remedies to the system at large. He considers two indications highly important in this stage of cholera, the first being to convey water to the thickened blood, for which purpose he proposes that the patient shall inhale steam and hot water nebulized from one of Siegle's apparatus, the temperature of the nebulized water being kept sufficiently warm by a flame under the medicine-glass; then, he contends, that as the thickening of the blood impedes the interchange of gases in the lungs, the second indication is to convey oxygen to the blood, which is best accomplished by inhalation of the pure gas. This, he maintains, would have a more promptly excitant action upon the heart than any ordinary medicine that could be administered in another way, and, as a result, the blood would be enabled to circulate through the vessels more rapidly, and become better and better prepared to imbibe the desired amount of vapor of water and of oxygen.

"Dr. Jütte, of Stettin (*Deutsche Klinik*, Dec. 1, 1866, p. 436), commenting on the article of Dr. Wittemeyer, says that he had made the experiment of administering oxygen by inhalation to four adult patients, during the short and severe epidemic which prevailed in and about Stettin in the year 1856, and that the administration had been conducted with great care and sufficient frequency, but that all of his patients died without evincing the least sign of even temporary improvement, and he was so disappointed with the result that he did not pursue the experiment any further."

According to the latest cablegrams from Toulon, the oxygen inhalation treatment has proved unsatisfactory.

THE SUBCUTANEOUS INJECTION OF IRON.—Of all the organic and inorganic salts of iron with which experiments were made, GLÆVECKE found that the citrate of iron is most easily and certainly absorbed. Sulphate of iron is made easy of absorption by the addition of two or three times its weight of citrate of sodium, whilst peptonized iron is very badly absorbed, and ammoniated sulphate of iron not at all. The iron is chiefly excreted by the kidneys, and in small quantities by the liver. It begins to appear in the urine within about one-half an hour after the injection, reaches its maximum in from two to four hours, and disappears in about twenty-five hours. In the urine, iron always appears in the ferrous condition, in whatever form it may have been injected. Bile contains iron in the ferric form. Blood-serum and peritoneal fluid contain it, after injection, both in the ferric and ferrous forms. The aqueous humor contained but little, from which Glævecke concludes that the iron exists in the body as an oxide, and in the form of an albuminate, and only becomes reduced to the ferrous state in the urine.

Glævecke used citrate of iron with good results in ten cases. For adults, the dose for injection is gr. jss, in a ten per cent. solution; for children, the dose is gr. ¾. The solution must be clear, and not over one month old. Large doses cause symptoms of poisoning, general discomfort, and vomiting in about thirty minutes. This treatment was used in two cases of nephritis, with the view of reducing the excretion of albumen, but did no good.—*Centralbl. für die med. Wissensch.*, May 24, 1884.

A CASE OF TÆNIA FLAVO-PUNCTATA.—DR. E. PARONA recently presented to the Academy of Medicine in Turin, a very interesting case of Tænia flavo-punctata. The patient was a child two years of age, and an examination of its feces showed ova which somewhat resembled those of the Tænia solium. A dose of castor oil was given in order to clean out the bowels; the patient was then put upon a milk diet, and gr. xlv of the ethereal extract of filix mas, ʒijss of gum acacia, and ʒj of fennel-water administered. About 4⅛ inches of the tænia were passed.

The head was very small, the neck fine and quickly terminating in the body. The cuboidal head measured ½ mm. in diameter; and microscopic examination showed the four hooklets placed above and obliquely, and about 122 by 88 mm. The extremity of the head has no proboscis, but is rounded, and is not on a level with the hooks. The links are short and trapezoidal with rounded angles, and become larger toward the tail. The joints or proglottides, always a little broader than long throughout the whole extent of the body, measure about ½ mm. in the smallest height, and about 3 mm. in the largest. The breadth of the proglottides varies from ½ mm. near the neck, to 4 mm. at the caudal extremity, the decrease in size being quite regular from the tail toward the head. The mature joints contain large numbers of ova accumulated at the margin of the joint, which are so numerous as partly to conceal the ovarian canal. This canal is distinguished by its being more of a clavate form, and more slender at the lateral margin of the joints. The ovarian conduit is always on the same side of the joint, and is recognizable by its yellowish color. The genital apertures could not be perceived, nor were the uterine pouches well defined.

The ova, many of which were obtained from the feces of the child, were oval, of an intense yellow color, and measured 58 and 68 mm. in their two unequal diameters. The protoscolex is very distinct, somewhat oval, provided with hooklets. Some of the ova (embryos?) became amber-colored a few hours after being passed in the feces, and were capable of lively irregular movements. The protoscolex is situated in the middle part of the ovum, occupying about a third of the cavity. The ovum is granular in form, structure, and appearance, thus resembling that of the Tænia solium. The shell of the ovum is formed of prismatic layers, giving

it the appearance of a double thickness. The thickness (?) of the shell is a third more than that of the ovum of the Tænia solium.

Parona thinks that there can be but little doubt that this is a specimen of the Tænia flavo-punctata, or flavo-maculata, observed in 1842, by Dr. Ezra Palmer, and examined by Weinland, and afterwards by Palmer and Leuckart. [For a description of a specimen of Tænia flavo-punctata, see the article, by Prof. Leidy, in *The American Journal of the Medical Sciences*, July, 1884.] —*Revist. Internaz. di Med. Chir.*, May, 1884.

HYDROBROMATE OF CONIA IN EPILEPSY.—MR. R. N. WOLFENFENDEN reports seven cases of epilepsy treated with hydrobromate of conia. The conclusions he draws from the treatment of these seven cases are—that the drug is undoubtedly serviceable in certain cases, and those in which it fails are cases of convulsions depending possibly on some gross lesion of the brain. The slighter cases were distinctly benefited by it.

The drawbacks to the use of the drug appear in the complaints of headache, and, when in large doses, of giddiness lasting for an hour after taking it, with sometimes a suffusion and congestion of the conjunctivæ. In the doses in which he has given it, there has not been noticed any cardiac or respiratory alteration. It is said that the dose of this drug must not exceed four and a half grains in twenty-four hours, commencing with one and a half grain. In his experience, a child of eight bore one and seven-eighths grain with only headache; a child of seven took one and a half grain per diem, without any complaint; two and a half grains per diem were taken by a female, without complaint; one adult man took three and a quarter grains with impunity. In one case, two grains per diem caused sickness, headache, giddiness, and "weakness" in a young man of eighteen. One and a half to two grains appears to be followed frequently by headache. He thinks the drug deserves further trial, and he hopes to try it more extensively in future. Combined with the constant application of the continuous current, he has successfully treated with it a case of hemichorea. In this case, however, it would be rash to speculate whether the drug, the galvanism, or time was the most effectual in the cure.—*Practitioner*,, June, 1884.

PARTIAL RESECTION OF THE BLADDER.—Following the experiments of Maksimoff, Vincent, Gluck, and Zeller on partial excision of the bladder and suture of the bladder, SNAMENSKJI, of Moscow, has made some interesting researches on this subject on dogs, in order to determine how far one can go in partially excising the bladder without compromising the life of the animal.

In his experiments Snamenskji used from two to four provisory suspension-threads in order the better to fix the bladder during the excision and suture. These were also used in partial resection through the whole vesical wall without, as Vincent has experimentally shown, causing any deleterious effects to the bladder at their seats of insertion. In total resection it was shown that the sutures were injurious in the first experiments, since by the tearing of the threads their points of insertion were pulled open and the animal died of peritonitis. Subsequently the sutures were inserted through the serous membrane alone. For the sutures Snamenskji used catgut, Nos. 0 and 1. Beside the deep (seromuscular) interrupted sutures, he always used superficial glover's sutures, and both sutures were brought by Juillard and Petersen's method up to within two-fifths of an inch of the angle of the wound. For incising the bladder he considers the scissors much superior to the scalpel.

By this method Snamenskji excised the upper half of the anterior wall of the bladder, the whole anterior wall, and a whole bladder with the exception of the part where the ureters entered, and a small part of the anterior wall. All of the animals upon which the last operation was performed died, the majority of peritonitis in three days. Only one dog lived sixteen days. At the autopsy the bladder was found to be pear-shaped, about the size of a walnut; the ureters were dilated to four times their natural size, and the pelves of the kidneys were also dilated. The situation of the sutures could not be seen with the naked eye; only in one place in which the mesentery was somewhat distorted, a thickening of the bladder-wall could be felt. Death took place from uræmia.

The animals upon which partial and total excision of the anterior wall was done lived, with the exception of one, in which case the deep suture was also the glover's. —*Centralbl. für Chir.*, April 5, 1884, and *Lo Sperimentale*, April, 1884.

FIFTY CASES OF TÆNIA.—Dr. Krabbe has published a report of two hundred cases of tænia met with in Denmark. DR. FRIIS, of Tönder, now reports fifty cases coming under his personal observation. Of these, forty-two of the parasites were of the order Tænia mediocanellata, six were T. solium, and two (in children one year old) were T. cucumerina.

The T. mediocanellata was found in thirty-two females and ten males. Doubtless a similar proportion would be found in the cases of Tænia solium if a sufficient number of cases could be collected. It would seem that the woman is ordinarily infected by tasting the raw meat for puddings, etc. Friis found, as did Krabbe, that the majority of infected persons are between the ages of twenty and forty years. None of the remedies used was completely inefficacious, and in the case of the Tænia solium almost any of the usual remedies are likely to succeed except the officinal preparation of the extract of male fern, which seems to be very inefficient. In the cases of T. mediocanellata, however, filix mas was the most efficient of all remedies. The second place must be given to pomegranate root, with or without kousso; but this ordinarily requires several trials, which is not the case with filix mas.

Under the use of the rectified ethereal extract of male fern, in cases of T. mediocanellata, the head came away in 10 cases: the worm disappeared in 6; result unknown in 2; no failures. With the ethereal extract of male fern there were 6 failures. With pomegranate root, the head came away 4 times; the worm 4 times; result unknown 1; failures 5. With pomegranate root and kousso, the head came away 3; the worm 2; result unknown 2; failures 2. With kousso, the head came away 1; failure 1. With psaoria, result unknown 1; failures 2. With kamala, failure 1.—*Nordiskt Mediciniskt Arkiv.*, Bd. xvi. Hft. 1–6, 1884.

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THE TREATMENT OF COMPOUND FRACTURES.

AMONG the noteworthy papers read before the Surgical Section of the American Medical Association, at its recent meeting, is one, by DR. F. S. DENNIS, on the treatment of compound fractures, in which are tabulated 144 cases, without a death from sepsis, and one hundred cases without a death from any cause. Of the entire number 23 are of the skull, 3 of the femur, 58 of the bones of the leg, 12 of the humerus, 14 of the radius and ulna, 9 of the maxillæ, 21 of the bones of the hand and foot, and 4 of the ribs and nasal bones. The favorable results, and the simple measures by which they were obtained, are so conspicuous that they are entitled to a somewhat detailed examination.

Of the 23 compound fractures of the skull, 6 succumbed to shock within forty-eight hours after the injury, so that they were not amenable to any plan of treatment. Of the remaining 17, all of which recovered, 10 were trephined, the lacerated dura mater having been stitched with catgut sutures in one. The wounds were managed openly with carbolic acid, or balsam of Peru.

Of the 61 compound fractures of the thigh and leg, 2 died of shock within twelve hours after their admission, and all of the remainder recovered, despite the fact that 14 underwent amputation, and that in 10 the fracture opened into the knee- and ankle-joints. In one case, indeed, both bones of both legs were comminuted and the bleeding was alarming, while in another both legs and one forearm were broken. Of the 26 fractures of the humerus, radius, and ulna, all recovered save one, which died of shock within twenty-four hours. In 6 amputation was resorted to, and in 7 the adjacent joint was involved. All of the cases of fracture of the maxillæ and other bones terminated favorably.

The treatment adopted by Dr. Dennis includes absolute cleanliness, immediate fixation, and provision for free drainage when necessary. The patient having been anæsthetized, the injured limb is thoroughly scrubbed with soap and warm water, and the wound irrigated with a 1 to 40 solution of carbolic acid, or a 1 to 2000 solution of corrosive sublimate. If the projecting ends of the bone cannot be reduced without too much violence, physiological rest is insured by the subcutaneous section of the tendons of the resisting muscles, aided, if need be, by the removal of the ends of the protruding fragments themselves. Loose spiculæ having been extracted, the wound having been thoroughly washed out with one of the above-mentioned solutions, and the fracture having been adjusted, the opening, if small, is closed with adhesive strips and sealed with collodion, or, if large, is partially united with catgut sutures, a drainage-tube inserted, and covered with iodoform and antiseptic gauze. The entire limb is next enveloped in previously heated Gamgee's absorbent cotton, and the dressing finished with the plaster-of-Paris bandage.

Should the case progress favorably nothing more need be done; but, under opposite circumstances, a fenestrum should be cut over the site of the fracture, and the wound be examined. If the latter be inflamed and the tissues tense, it should be enlarged and washed out with the carbolic or sublimate solution, and be left to suppurate under free exposure to the air, care being taken to keep it absolutely clean and free from all sources of contamination.

The management of compound fractures of the long bones of the extremities, thus outlined, is extremely simple and rational, and the results obtained will compare favorably with the best heretofore recorded. We are unable, however, to understand what Dr. Dennis means when he states that he wishes "it to be understood that I do not undervalue antiseptic surgery," but that the same results are attainable "by other and simpler methods which are within the reach of all," and that "wounds and compound fractures can repair kindly and quickly without danger, though exposed to the air." While it is true that the strict Listerian method was not carried out in his cases, and few practise it now-a-days, it is none the less true that his treatment is, in the strict sense of the term, thoroughly antiseptic, and not the open method of Humphry or James R. Wood. In the majority of his cases, indeed, a fenestrum was not required at the seat of the injury, and when it was, he is most explicit in his directions to enlarge the wound down to the fracture, wash it out with a solution of corrosive sublimate or carbolic

acid, keep the parts absolutely clean, and provide free drainage when necessary. If this is not antiseptic treatment, we have failed to comprehend its principles; and, instead of speaking of the open treatment of compound fractures, we fancy that Dr. Dennis, in recording his great success, would have more correctly described his methods had he called them the antiseptic occlusive and the antiseptic open methods of treating compound fractures.

THE CHOLERA.

THE recent appearance of Asiatic cholera at Toulon and Marseilles, two of the principal Mediterranean ports of France, leads us to sound a note of warning to those whose duty it is to look after the health interests of our country.

The history of this disease in the past would seem to warrant the prediction of Dr. Koch: "It will reach Germany; it will go everywhere." Its march through India every third, sixth, ninth, and twelfth years, following the pilgrimages to Juggernaut, Hurdware, and other shrines, and its periodical twelve-year visitation to this country, render it quite probable that the disease has started on its course and may reach our shores at any moment. In the last epidemic of 1873, cholera visited the United States before it appeared in Paris.

Then there were many sources of infection—it was first brought to New Orleans by a Bremen bark, and developed in the case of a man employed in unloading her cargo (a native of Pensacola who went to New Orleans for employment). But the larger number of cases were imported directly through New York City on non-infected vessels, but the disease was not developed until the personal effects of the victims had been unpacked at their destination. This was shown in the three distinct outbreaks at widely remote parts of the United States, where the effects of emigrants from Holland, Sweden and Russia were unpacked at Carthage, Ohio, Crow River, Minnesota, and Yankton, Dakota, where, within thirty-six hours thereafter, the first cases of the disease appeared. All these emigrants touched at Liverpool, where they were transferred to vessels bound for the United States.

It will be seen by the foregoing that infected ships are not the only sources of danger, and that the safety of the country greatly depends upon a prompt notification by telegraph of the departure of emigrants bound to the United States from any port in Europe, or of merchandise from infected districts. With this information, and the knowledge we now have of the infection, it is believed that the disease can be kept within very narrow limits—in fact, confined to the immediate vicinity of those who are the carriers of the disease.

By employing 1. Immediate telegraphic notification from Europe upon the departure of emigrant ships from foreign ports; 2. Rigid inspection of such vessels, including thorough disinfection of all emigrants' clothing and baggage upon arrival at United States ports; and 3. Perfect local cleanliness in every port, town, and country village; there need be no fear of the cholera becoming epidemic in this country. There may be a few sporadic cases, but they should occasion no alarm, as the disease is everywhere admitted to be a filth infection, and its antidote is cleanliness.

The National government, through the State Department is obtaining daily telegraphic notification from Europe relative to the progress of the disease, and the departure of immigrants to the United States, and a circular to Collectors of Customs, prepared by Surgeon-General Hamilton, has been issued from the Treasury Department, "requiring evidence that none of the baggage of immigrants or returning travellers has been shipped from the infected districts since June 20, 1884, and a certificate of the local quarantine officer, to the effect that no danger to the public health need be apprehended from allowing the landing of any passenger's baggage, may be accepted as entitling such traveller or immigrant to land his effects."

In addition to these precautions, the President's "Epidemic Fund," under control of the Marine-Hospital Service, is being employed to prevent the introduction or spread of the disease, and to establish quarantines at points of danger. Three United States quarantine stations are now equipped for the work—one at Ship Island in the Gulf, a second in Sapelo Sound on the coast of Georgia, and the third at the mouth of Chesapeake Bay.

It only remains, then, for our local health authorities, and sanitarians generally, to keep alert, to thoroughly and systematically organize a force of inspectors whose duty it shall be to daily patrol the alleys and by-ways of our cities and towns, and follow up their inspections by having all filth and unsanitary matters removed or corrected. Municipal cleanliness, isolation hospitals, and national quarantines, will keep our country free from all epidemics.

MILK SECRETION AS AFFECTED BY SPAYING, BY EXERCISE, AND BY CERTAIN MEDICINES.

MR. LLOYD F. ABBOTT recently read before the Suffolk District Medical Society (*Boston Med. and Surgical Journal*, April 3 and 10, 1884), an interesting paper on the increase of milk secretion resulting from spaying cows.

Spaying cows for the purpose of securing a constant supply of milk, uniform in quantity and quality, has probably not been done in this country outside of Massachusetts. Mr. Abbott's attention was

directed to the subject by a translation from a French work in 1880; but he learned that the Hon. Josiah Quincy had had the operation performed at his farm twenty years before.

The results of Mr. Abbott's experience are that the operation is not dangerous, and that it increases the flow of milk and improves its quality. The operation may be done by abdominal, or by vaginal incision—the former seems to be preferred—and thus veterinary surgery recognizes the same methods that have been used in the human subject, abdominal and vaginal ovariotomy. But the removal of the ovaries once they are reached, is a much simpler operation in the cow than in the human female—only the thumb-nail being needed in tearing away the organs, and no ligatures are required.

The testimony of the medical gentlemen who discussed the subject when the paper was read, was decidedly in favor of the beneficial influence of the operation upon the secretion of milk. It is claimed that the amount given by a spayed cow will remain the same all her life. This certainly is a matter of great interest and importance; and should it be confirmed by further experience, we do not doubt that this operation will become quite common.

While referring to the matter of spaying cows in relation to the supply of milk, we may also note some investigations of MUNK, given in a recent number of the *Archiv f. Anat. und Phys.*, as to the influence of exercise upon the milk secretion of cows. Munk acknowledges that Schmidt-Mülheim is correct in his statement as to excessive exercise lessening the quantity of milk for these reasons. In exercise of this sort the blood current is directed from the gland apparatus to the muscles, there is also a great consumption of material, and chewing the cud is interfered with. He, however, disputes the statement that cows must be kept at absolute rest, in order that the secretion of milk shall attain the maximum. His own observations prove that, as in the nursing woman, moderate exercise increases the secretion of milk by changes in respiration, in circulation, and in digestion, and, hence, the general condition of the animal is better, the appetite greater, and its nutrition improved. The increase in the milk of cows allowed moderate exercise, is not merely in its watery portion, but in the butter and casein.

"The National Dispensatory," p. 1086, states that the mammary secretion is diminished by atropia, and increased by pilocarpin. The recent studies of HAMMERBACHER, *Pflüger's Archiv f. Physiologie*, show that this statement, especially as to the action of pilocarpin, needs qualification. He finds that after its administration, atropia causes a considerable reduction in the milk mass, but it is richer in solid elements, especially fat, and in seven hours after its administration the secretion becomes normal. Pilocarpin causes a reduction in the milk mass, and the milk is poorer in solid constituents than normal milk; the effect lasts longer than that of atropia, and is to be attributed to the disturbance caused in the general health; the presence of pilocarpin in the milk has not been ascertained.

PARTIAL LARYNGECTOMY.

AT the recent meeting of the German Surgical Association, HAHN, of Berlin, recorded five cases of laryngectomy for carcinoma, the entire larynx having been removed in three, and one-half of that organ in two. Of the former, two died of suppurative bronchitis and pneumonia in the fourth and fifth week, and the third was still living at the end of three months. Both of the latter recovered and were free from recurrence, respectively, at the end of three years and a half and nine months. They were wearing a simple canula, and were comfortable, and made themselves so readily understood that they refused to have the wound closed.

Hahn is a strenuous advocate of removing only one-half of the larynx where the limited extent of the disease admits of it. Total extirpation has resulted in twenty-four deaths out of fifty-two cases, while removal of one-half of the larynx has terminated fatally once out of eleven cases. Not only is the latter operation more safe, but it is less frequently followed by recurrence, and the functional results are so much better that the canula can be dispensed with in the majority of instances.

In the discussion elicited by the reading of the paper, Hahn found two warm supporters of his views in Schede, of Hamburg, and Küster, of Berlin. Schede's patient was living eighteen months after excision of the right half of the larynx for carcinoma. He had ceased to wear the canula for nine months, and his articulation was distinct. Küster's operation was for sarcoma, but the speech was hoarse and less clear than in Schede's case. Unfortunately, the time that had elapsed since the operation is not stated.

THE paper on "Branny Foods" prepared by DRS. N. A. RANDOLPH and A. E. ROUSSEL, and read by the former before the College of Physicians of Philadelphia, on June 4th, is a valuable contribution to our knowledge of this subject. That the outer three of the four bran coats of the wheat grain contain little or nothing that is nutritious except the salts, and that the rapid peristalsis which they excite when ingested as food interferes with the absorption of the true nutritious substance of the grain, will be a surprise to many. But these facts seem, nevertheless, to have been shown by the authors.

Even the salts, which the authors acknowledge to be lost when the bran coats are removed, are

not essential in a mixed diet of white wheat bread with succulent vegetables, in which these elements abound. Hence the lovers of white bread need not feel in the future that they are such grievous offenders against the laws of health.

REVIEWS.

SEVENTH ANNUAL REPORT OF THE BOARD OF HEALTH OF THE STATE OF NEW JERSEY. Pp. 391. Trenton: 1883.

THIS report, which has just been presented to the Governor of New Jersey, is well calculated to maintain the high standing of the previous reports issued by this Board.

The volume opens with a recital of the work done by the Board during the year 1883, written by the Secretary, that veteran sanitarian, Dr. Ezra M. Hunt. His report contains many valuable suggestions.

The record of vital statistics for the State shows a mortality of 23,310 for the year ending July 1, 1883, which is a considerable decrease from previous years, while the marriages and the births have increased.

The Secretary says that "a review of the past year assures us that both the public and the local health authorities are realizing the great significance of health and care, and the value of those improvements which secure good water, proper disposal for decomposable substances, good houses, cleanly habits, and chances for employment deprived of all avoidable insanitary conditions. Several cities and towns have entirely modified their health administration, and others are so agitating the need as to be sure, eventually, to bring about desired results." A truly commendable and encouraging report.

The space at our command does not warrant a detailed account of the many valuable essays in the report, but we shall briefly note a few of the more prominent and interesting papers.

The Secretary contributes an essay on "Health in the Home and its Surroundings," which condenses into a few pages all the positive knowledge we have concerning sanitary house construction, ventilation, heating, drainage, and sewerage. Especial care is taken to point out the necessity of properly selecting and arranging the site. This article will well repay perusal.

Dr. David Warman, of Trenton, has an article on "Modes and Places of Interment," which is not so erudite or diffuse as the recent work by Dr. Stephen Wickes on a similar topic, but calls attention to the danger of interment in built-up portions of cities, and especially the peril of using old cemeteries for building sites.

There is no topic of more importance than the sanitary condition of our health resorts, and the Board has endeavored in its sanitary inquiries to awaken an interest in the subject. The article on this subject is disappointing, in that it does not tell specifically the danger to be feared in the summer resorts in the State. The Atlantic coast may be said to be lined with summer boarding places, and the thousands of people from Philadelphia, New York, and more distant places should be assured by competent authorities as to the healthfulness of these resorts. Most of the seaside hotels are but commercial ventures, hastily and cheaply constructed, and the water-supply and sewerage systems are not of the best. The State Board has, however, made an attempt to indicate in mild language where the more healthful resorts may be found, and where the more dangerous places are. We regret that there is nothing in this part of the report to which physicians contemplating a change of climate for patients may turn for information, and we hope that in the future the Board will devote more attention to this very important branch of their work.

The charitable and penal institutions of the State have been inspected, and in the synopsis given by the Board we find much to approve.

School hygiene comes in for a large share of space, and an exceedingly interesting and suggestive paper is contributed by Principal Green, of Long Branch. His is a practical article.

The diseases and dangers incident to trades and occupations are outlined by the Secretary.

In the summary of reports from local health boards we find that these bodies are in many places doing excellent work. The report from the Paterson local board is singled out as worthy of example.

Thirty-five pages are devoted to a report from the Council of Analysts and Inspectors, from which we learn that the illuminating oil has been been bettered by the system of inspection, and that the State milk inspector is encouraged by an improvement in the quality of the milk sold in the State. Prof. Cornwall furnishes an excellent article on malt beverages. His analyses show that beer and ale are not adulterated, and that the percentage of alcohol varies from 4.4 to 8.6 in these malt liquors.

A list of physicians who have complied with the State law, and who have registered a copy of their diplomas in the office of the County Clerk, takes up some thirty-four pages. To this list we shall refer again.

The Medical Superintendent of Vital Statistics publishes his annual report, together with quinquennial tables of mortality for the five years ending June 30, 1883.

We have thus roughly outlined the more important articles in this very interesting report, which should be read by all who wish to increase their store of knowledge concerning sanitary science.

SOCIETY PROCEEDINGS.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, June 4, 1884.

THE PRESIDENT, J. M. DA COSTA, M.D., IN THE CHAIR.

DRS. N. A. RANDOLPH and A. E. ROUSSEL presented the following

STUDY OF THE NUTRITIVE VALUE OF BRANNY FOODS.

From an economic standpoint the question of the nutritive value of bran is one of great importance, for the removal of this portion of the wheat implies a loss of from seventeen to twenty per cent. in the weight of the grain. In spite of this loss, which necessarily renders

white bread more expensive than that made from whole wheat flour, even the poorest inhabitants of most civilized countries where bread is not the staple food, insist upon eating the bread made from the finer grades of flour. A tendency so widespread as this would apparently indicate the unconscious summation of the experiences of many generations, and go far toward proving the propriety of such a selection.

The use of flour representing the entire wheat grain has, however, been long and ably advocated; the reasons given for the retention of bran being that its removal entails the loss of:

I. "Nutritive salts" (Nährsalze of Liebig).

II. Carbohydrates.

III. Proteids, notably gluten.

The facts, also, that branny foods in common with many others will spur an atonic bowel to activity, give due bulk to its contents, and induce the passage of stools of the normal or feculent consistency are noteworthy, but their further consideration is beyond the limits of the present paper. The other reasons for the retention of bran in wheat flour will be discussed seriatim.

I. The fact that fine flour contains a much smaller percentage of salts than does either bran or the whole wheat—a fact evidenced by the relatively small amount of ash which it yields, forms the basis of the theory of Liebig,[1] that in the removal of bran nutritive salts of value are lost. The investigations of Meyer[2] and Foster[3] are often cited as showing that, after the removal of bran, these salts are still present in quantity sufficient for the needs of the economy.

Our experiments upon young pigs, described further on, show that although survival is quite possible upon an exclusive diet of bread from white flour, growth is much more active upon a diet of bread containing a greater amount of inorganic matter. It is possible that Liebig's estimate of the needful amount of inorganic matters was too high, but it is equally noteworthy that there is a tendency on the part of late writers to give insufficient prominence to the importance of these elements of food. It may not be out of place here to mention a striking illustration of the absolute necessity for inorganic salts in the fluids of the economy, as recorded by Dr. S. Ringer.[4] This observer found that while minnows were kept in ordinary tap water they would live for weeks unfed. When, however, they were placed in distilled water they died on an average in four hours and a half. Further, that in a rude imitation of spring water, made by the addition to distilled water of potassium and calcium chlorides, and of sodium bicarbonate, the fish lived on an average about two weeks. Study of the factors in the experiments showed that death was due to a diminution of salts in the economy of the fish. That such diminution, even when very slight, could result fatally, was shown by an analysis of the distilled water after the death of the fish; traces only of inorganic matter being found.

II. The loss of carbohydrates involved in the removal of bran, appears at first sight not inconsiderable, as it amounts to about twenty per cent. of the carbohydrates present in the entire grain. The members of this group represented in bran are starch and cellulose. The former is present in extremely small amount, while the latter, as has been proven by the experiments of Donders,[1] Mulder,[2] and Poggaile,[3] is digestible in any noteworthy degree[4] by the herbivora only. The observer last named subjected a given weight of dry bran to the successive actual digestions of two dogs and one hen, and, thereafter, was able to recover over sixty-five per cent. of its non-nitrogenous constituents. The loss in cellulose was probably much less than that here indicated, for we have found that during the maceration of bran in the digestive tract, certain portions become detached from the main flake, and are with the greatest difficulty recovered.

III. Wheat bran contains a considerable but varying proportion of nitrogenous compounds, averaging however about 14 per cent.[5] This fact has permitted the continued existence of two widely credited assumptions: (*a*) That this nitrogen exists in albuminoid combination, or, in other words, is in a nutritious form; and (*b*) that the proteid matter of wheat is contained almost exclusively in specific cortical cells of the grain—the so-called "gluten cells."

(*a*) Nearly all the existing estimates of the proportion of proteids in food-stuffs are based upon the hypothesis that all of the contained nitrogen is present in some albuminoid combination. The percentage of nitrogen in a given food is therefore ascertained, multiplied usually by either 6.5 (Payen) or 6.33 (Ritthausen) and the result recorded as the percentage of proteid matter. It has lately been conclusively proven that nitrogen in non-albuminoid combination, *i.e.*, in compounds not capable of affording nourishment to any higher organisms, is present in many food-stuffs, and especially in those of vegetable origin. As a case in point, may be mentioned the analyses of Wigner,[6] in which it is shown that of the total nitrogenous matter of the entire wheat grain, 87.9 per cent. is coagulable, *i.e.*, distinctively proteid. Of the bran only 42.4 per cent. of its nitrogenous compounds are coagulable, whereas, in the flour, 89.7 per cent. of these bodies come under the head of true proteids. Yet more marked instances of the inaccuracies attending the ordinary methods of estimating proteids have become evident in the course of researches by Schulze and Barbieri,[7] who find that of the entire nitrogen of the potato but 56.2 per cent. enters into the composition of albuminoid matter, while

[1] Chemische Briefe, 1851.

[2] Zeitschrift f. Biologie, vol. vii. p. 33.

[3] Ibid., vol. ix. pp. 293–380.

[4] Journal of Physiology, vol. iv., No. 6, Feb. 1884, in the appended Proc. Physiol. Soc., session Dec. 13, 1883.

[1] Nederl. Lancet, vol. vi. pp. 227, 244.

[2] Physiologische Chemie, p. 1024.

[3] Comptes Rendus, vol. xxxvii. p. 173.

[4] See, also, Weiske (Centralblatt, No. 26, 1870), who finds that a small percentage of cellulose, especially when cooked, is dissolved in the human digestive tract.

[5] Dempwolf, Ann. d. Chem. u. Pharm., vol. cxl. p. 343. His figures, of interest here, are as follows: The amount of nitrogenous matter in the whole wheat was 14.35 per cent. The amount varied in the different grades of white flour from 11.01 to 15 56 per cent. The nitrogenous matter of the two grades of bran made from this wheat was respectively 13.93 and 14.06 per cent.

[6] Der Œsterr. Ungar. Müller, 1879, p. 52.

[7] Quoted by Voit, Hermann's Hdb. d. Physiol., vol. vi. p. 462.

in the fodder beet only 20 per cent. of its contained nitrogen is thus combined, the remaining 80 per cent. aiding in the formation of amides, nitrates, and ammonia. It is evident from these facts that estimates of the nutritive value of branny and other foods, based upon the percentage of nitrogen present, must be received with caution.

(*b*) The term "gluten cell" is, through a widespread misapprehension, applied to the cells constituting the fourth layer (Parkes) of the wheat grain. These cellular elements exist usually in a single stratum, as irregularly cuboidal bodies in each of which, surrounded by a dense and laminated cellulose wall, is seen the semi-opaque granular contents. Upon the addition of reagents, especially in the form of caustic alkaline solutions, there is almost constantly noticeable a differentiation of the contents strongly suggesting the presence of a nucleus. Under these conditions, also, a coalescence of many of the individual granules forming the contents occurs with the formation of several highly refractive spheroidal bodies, an appearance which has led Payen (as quoted by Dr. Richardson) to use the name oléifères as a synonym for the cellular constituents of the fourth coat. The hypothesis that the cells of this layer are the chief gluten-bearers of the wheat grain is usually attributed to Donders.[1] The return of bran to flour was at about the same period also advocated by Millon and Mége Mouriès.[2]

From this time on, with but few dissenting voices, the "gluten cell" has been generally spoken of as the index of the nutritive nitrogenous matter[3] of the wheat grain, while the central portion included within this layer, and constituting fully 80 per cent. of the grain, has been popularly regarded as being made up almost exclusively of cellulose and starch, and attempts have even been made to estimate the nutritive value of certain cereal food-stuffs by a microscopical determination of the proportion of "gluten cells" present.[4]

The manifest impropriety of such methods has of late been strongly emphasized by Prof. Richardson, of this city, and Prof. Leeds, of Hoboken. The credit of the first disproof of the exclusive limitation of gluten to the cells of the fourth layer, is probably due to Schenk,[1] who treated sections of wheat grain with Millon's reagent, a pink coloration of the endosperm resulting. This coloration was most vivid at the periphery, indicating a gradual condensation of the proteid constituents of the grain as the cortex was approached. The same writer found "no coloration of the 'gluten cells' as a result of this reagent," an observation which we cannot confirm; for, apart from the readily demonstrable slight coloration of the contents of "gluten cells" after the application of Millon's reagent, it is more than difficult to conceive a cell, however specialized, which shall exhibit no proteid matter as a portion of its contents. Schenk also noted in artificial gastric digestions of sections of wheat, that the starch granules which (to a greater extent) fill the cells of the central portion of the grain, became detached, and from this fact deduced the just proposition that the starch granules lay imbedded in some albuminoid substance. In a study of the distribution of gluten within the wheat grain,[2] the senior writer has described several methods for the ocular demonstration of gluten, in very considerable amount, in that portion of the grain included within the fourth layer, and entirely independent of the "gluten cells." The methods were as follows:

If whole wheat grains be macerated in water, to which a few drops of ether have been added to prevent germination, they will, in a few days, become thoroughly softened, and the contents of each grain may then be squeezed out as a white tenacious mass.

Examination of the remaining bran shows the "gluten cells" undisturbed, closely adhering to the cortical protective layers.

By now carefully washing the white extruded mass, the major part of the starch may be removed; and, upon the addition of a drop of iodine solution, microscopic examination shows numerous networks of fine yellow fibrils, still holding entangled in their meshes many starch granules, colored blue by the iodine.

In carefully washed specimens, the sponge-like networks are seen to retain the outline of the central starch-filled cells, and evidently constitute the protoplasmic matrix in which the starch granules lay. Upon gently teasing such a specimen under a moderate amplification, the fibrils will be seen to become longer and thinner in a manner possible only to viscid and tenacious substances—a class represented in wheat by gluten alone.

An eminently satisfactory proof of the proteid nature of these central networks may be obtained by heating the specimen in the solution of acid nitrate of mercury (Millon's reagent), when the fibrils will assume the bright pink tint characteristic of albuminoids under this treatment. The results of the application of the xantho-proteic and biuret reactions are equally conclusive, but more care is required in the use of these proteid tests, and the resultant differentiation is not so clear. Reticuli, similar to those above described, but much broken and consequently far smaller, may be seen upon close examination, scattered throughout fine white flour, without the use of any reagent.

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[1] Nederl. Lancet, iv. 739; vi. 227, 244. Third series, vol. i. 377.

[2] Comptes Rendus, vol. xliv. p. 47.

[3] By general consent the albuminoids of the wheat grain are grouped together as gluten, which is, however, further separable into gluten-fibrin, gluten-casein, gliadin, and mucedin, proteid bodies practically equal in nutritive value, but differing in certain physical properties, notably that of solubility. It must therefore be borne in mind that in all methods of separating gluten from the other constituents of the grain, its (relatively small) soluble portion is removed with the starch, and that any estimate of the quantity of gluten based upon such methods will probably be below rather than above the actual amount. Ritthausen (Die Eiweisskörper der Getreidearten, 1872) believes that a certain amount of true albumen should be included with the constituents of gluten just mentioned. An observation of Denis (Mémoire sur le sang, 1859), confirmed by Hoppe-Seyler (Med. Chem. Unters. 1867) and Weyl (Ber. d. deut. chem. Ges., xiii. 10, 1880), demonstrates that a portion of the proteids of the cereals exists tn the form of a globulin. Thus, the observer last named has shown that in wheat flour treated with a 15 per cent. solution of sodium chloride, no formation of gluten occurs. We have found that bran when macerated in 15 per cent. salt solution, yields a considerable amount of proteid matter precipitable by nitric and picric acids. We incline to believe, however, that this is not a true albumen. (See Vines, Journal of Physiology, vol. iii. p. 93.)

[4] E. Cutter, M.D., Galliard's Med. Journ., Jan. 1882.

[1] Anat.-Physiol. Utersuch., p. 32, Wien, 1872.

[2] Randolph, Proc. Acad. Nat. Sci. Phila., Dec. 11, 1883, p. 308.

In even the thinnest sections of the wheat grain, the gluten of the central portion is always masked by large numbers of starch granules. These may to a large extent be removed by immersing the section for a short time in liquor potassæ, with subsequent careful washing. The alkali effects the hydration and partial solution of the starch; but, if its application be too long continued, the gluten will also be dissolved. This treatment is well adapted to show the rather dense gluten networks usually found adherent to bran immediately below the fourth layer.

The most satisfactory method of studying the distribution of gluten in sections of wheat, is that of artificial salivary digestion. If the section be gently boiled for a moment to hydrate the starch, then transferred when cool to filtered saliva, and maintained for from half an hour to an hour at a temperature of about 98° Fahr., all the starch will be dissolved, while the insoluble proteid and other constituents will remain *in situ* and entirely unaltered. The same result may be obtained from a somewhat more prolonged digestion of the unboiled section. A section of wheat grain thus treated will exhibit throughout its entire central portion close-meshed gluten networks, which become slightly denser towards the cortex of the grain. The proteid character of these reticuli is here, as in the first method, susceptible of micro-chemical demonstration. Upon the application of Millon's reagent to such a section, a relatively very faint coloration, indicating the presence of albuminoids, is noticeable in the "gluten cells," while the gradual condensation of the gluten of the endosperm, as the fourth layer is approached, is evident even to the unaided eye.

The fact that the gluten networks become denser towards the periphery of the endosperm, together with the presence of non-albuminoid nitrogenous compounds in the perisperm, explains the notable percentage of nitrogen found in bran as ordinarily roughly removed.

The small proportion of albuminoids present in the cells of the fourth layer as evidenced by their feeble response to the proteid tests, together with the very considerable quantity of gluten which we have shown to exist in the central four-fifths of the grain (*i. e.*, the portion lying within the fourth layer) justifies us in the conclusion that by far the major portion of the nutritious nitrogenous matters exists in entire independence of the "gluten cells."

The difficulties which attend the complete isolation of these cells, however, have as yet rendered impossible any accurate estimation of the proportion of their proteid contents. Admitting for the moment that the "gluten cells" contain albuminoids in any noteworthy amount,[1] there are yet present conditions which seriously affect, if they do not entirely nullify the nutritive efficiency of this portion of the grain.

The first of these conditions is the presence of the rough bran scales which, by increasing peristalsis, so hasten the passage of the entire intestinal contents that complete digestion and absorption are prevented. The second is that owing to the dense cellulose walls of the "gluten cells," their contents are practically unaffected by the digestive juices. The fact that the presence of branny scales in the digestive tract prevents the thorough digestion of the intestinal contents and induces the passage of feces containing a considerable excess of undigested nitrogenous matter is fully attested by the observations of Meyer and Rubner.[1] Edward Smith[2] has also closely studied the ecomonic phase of this subject, and reports most unfavorably upon the use of branny foods, stating that the diminished absorption of nutritive matters, entailed by their use, more than counterbalances the (apparent) gain in cheapness. Of interest in this connection is the observation of Fr. Hofmann[3] who noted that the amount of feces passed upon a meat diet was remarkably increased by the addition of cellulose to the food taken.

The feeble response of the "gluten cell" to reagents and digestive juices, has been noted by several observers. Thus Donders[4] states that these bodies are digested by the herbivora, but not by dogs or man. Similar results are recorded by Poggiale,[5] and for domestic fowls by Meissner and Flüge.[6] J. Lehmann[7] records the feeding of pigs for thirty-two days on bran which contained almost no flour, with a nearly negative gain in weight, although the bran contained 15.5 per cent. of nitrogenous matters.

The ability of herbivora to digest "gluten cells" and similar bodies, is probably due to the relatively powerful amylolytic ferments of their digestive fluids, for it has been demonstrated that pepsin is unable to traverse cellulose.[8] It has also been shown by one of us[9] that the cells of the fourth layer are to all appearance entirely unaffected by prolonged artificial digestions—salivary, gastric, and pancreatic, and further, that their contents were but little changed, and their walls in nowise disintegrated by immersion for some days in strong acids and alkalies.

Lately, however, in the course of an admirable paper upon the nutritive relations of gluten, Rubner[10] has stated that although branny foods increase the amount of nitrogen in the feces, fully three-fourths of the nitrogenous matter of bran is digested. In the bran used there was present 4 per cent. of nitrogen, "equalling 25 per cent. albuminoids," while in the bran obtained from the feces of the persons under observation only 0.9 per cent. of nitrogen was obtainable. We hesitate in criticising the results of so able an observer, but it seems to us that there were two sources of error in this portion of his investigation. In the digestion of bran the free, adherent gluten, which properly belongs to the more central layers, is of course readily dissolved with

[1] Apart from the statement of Schenk, above cited, the entire absence of gluten in the cells of the fourth layer has been latterly affirmed by Mége Mouriès, who is quoted by Payen (Substances Alimentaires) to the effect that these cells are "filled with nitrogenous substances of which gluten is not at all one." He finds the cells in question to contain in addition to the salts of magnesium, lime, and potash, a peculiar diastatic ferment, cerealin, whose function is the transformation of the starch of the grain into dextrine and glucose for the nourishment of the germinating seed.

[1] Zeitschrift f. Biologie, vol. vii., ibid. xix., 1883, p. 46.
[2] "Foods," 1875, p. 175.
[3] Voit, Sitzgsber. d. bayr. Acad., Dec. 1869.
[4] Physiologie (German ed.), p. 273.
[5] Comptes Rendus, 1853.
[6] Zeitsch. f. rat. Med., vol. xxxi. p. 185, and vol. xxxvi. p. 184.
[7] Amtsbl. f. d. Handl. u. Wer. d. Königr. Sachsen, 1868, No. 2.
[8] Hammersten, Jahresber. d. Thierchemie, vol. iii. p. 207.
[9] Randolph, Proc. Acad. Nat. Science, 1883, p. 311.
[10] Zeitsch. f. Biologie, vol. xix. 1883, p. 46.

a consequent reduction in the nitrogen of the bran. Apart from this, however, a loss in nitrogen is to be expected from the diffusion of nitrogenous crystalloids; further, the "gluten cells" become so separated from the true bran, during their maceration in the intestinal contents, so that it is nearly, if not quite, impossible to recover them.

In order to satisfy ourselves regarding the digestibility of the cells of the fourth coat, we have subjected bran with its adherent "gluten cells" to actual digestion by twelve well-nourished adults, six males and six females. These twelve persons were selected from a larger number by excluding all whose feces exhibited under microscopic examination any inefficiency in the amylolytic and proteolytic digestive ferments as evidenced by the presence of starch or muscle fibre in more than a minimal amount. Sources of error arising from individual peculiarities having been eliminated by the number of persons under observation, and the best conditions for digestion having been obtained, these persons then received daily for three days, in addition to their regular food, one ounce of thoroughly boiled bran. Their feces for the last two days of the treatment were submitted to close microscopical examination, with results so nearly uniform as not to require tabulation. In every case the number of "gluten cells" present was more than sufficient to render a diagnosis of the food taken a matter of great ease. In two-thirds of the cases no evidences of disintegration of any of the cells could be found upon repeated examination of many fields from each specimen. In four cases a small proportion (less than ten per cent.) of the numerous cells examined, showed evidences of having been affected by the digestive process, the cell contents having become lighter in color and less opaque. If, however, any true digestion of the cells had occurred, it is evident that many of these elements in different stages of disintegration would have been seen.

As a rule, we found that the several layers of the bran presented an appearance, not of having been digested, but simply of having been subjected to prolonged maceration. Thus the three coats of the true bran while entirely unchanged, were frequently found separated from each other. We had expected to find the fourth layer closely adherent to the third, as is the case in dry bran, but in the majority of specimens these two coats became separated, and occasionally large sheets of "gluten cells," to all appearances perfectly normal, were seen. As a rule, however, that portion of the fecal mass representing the meal at which bran was taken[1] was found to contain these thick-walled cells in nearly every field.

A study of the nutritive relations of a given food may be approached from three sides: First, from that of the exact chemical composition of the food, a knowledge absolutely essential to any scientific scheme of diet. Second, from that of the various excretions of the individual or animal upon the diet in question; and, third, from the more clinical standpoint of study of the effects exerted by a given diet upon the growth and nutritive processes of the organism under observation. After an examination of branny food in the light of the first two methods, we attempted its study by the third. To this end six young pigs of the same litter, and all in fair health, were weighed and placed under the same conditions in pairs, in three separate bins. Those in the first bin daily received bread especially made from whole wheat flour, in amount corresponding to one-fourth pound of dry bread each. To those in the second bin was given a corresponding amount of bread made from wheat whose three external coats only had been removed. The pigs in the third bin received the best white bread in amount corresponding to the standard above mentioned. A sufficient (fixed) quantity of water was given twice daily. The following table shows the weight of each pair at the beginning of the observation, and at the end of respectively ten and thirty-two days thereafter:

Bin.	Age.	Food.	Joint weight March 6.	Joint weight March 16.	Joint gain 10 days.	Joint weight April 6.	Joint gain 32 days.
	weeks.		lbs.	lbs.	lbs.	lbs.	lbs.
I.	6	Bread from whole wheat	24.5	29.0	4.5	33.25	8.75
II.	6	Brown bread from decorticated wheat	24.75	28.25	3.5	34.50	9.75
III.	6	White bread	25.25	27.25	2.0	33.0	7.75

Comparison of these weights exhibits curious and apparently contradictory results, viz., that during the first ten days the gain was greatest in the pigs fed upon whole wheat bread, whereas, at the end of thirty-two days of such feeding the gain was most pronounced in the pigs fed upon bread made from wheat whose three outer coats had been removed. The cause of this variation in results is not far to seek. At the commencement of the experiments the animals were small, and the food given was in each case more than sufficient to replace the waste in both the tissues, and circulatory fluids. Even the pair fed upon bread containing the innutritious and waste-inducing bran, digested and absorbed sufficient proteid matter to supply the needs of the tissues, and normal growth was also favored by the presence of a bulky intestinal contents of a mechanically stimulating nature and also by the nutritive salts which were present in this bread in larger amounts than in the others. On the other hand, at the end of the thirty-two days, the animals had notably increased in size; the food given was then barely sufficient for the needs of the economy, and any conditions impeding its complete digestion and absorption produced a notable effect upon the rate of growth of these young animals.

It must be borne in mind that these experiments relate only to the value of the different breads when taken alone to the exclusion of other foods. The experiments of Rubner before cited leave no doubt that a white bread contains more assimilable nutriment than does one made from the whole wheat, but this does not render it a desirable food-stuff for exclusive use. On the contrary, a weaned, but still quite young omnivorous mammal thrives better upon an exclusive diet of bran bread than on white, and, presumably, because

[1] We did not find it needful to give with the bran any coloring matter to differentiate in the feces the meal at which it was taken, as the scales of bran were always a sufficient index. When requisite, such differentiation may readily be obtained by the method of Cramer (Zeitschr. f. Physiol. Chem., vol. vi. p. 354), or that of Rubner (l. c.).

the earthy and alkaline salts are present in greater abundance in the former, and, also, because the indigestible constituents tend to give to the intestinal contents that bulk and consistence which are essential to the hygiene of the digestive tract. But, as has been shown by Edward Smith and others, the branny scales are needlessly irritating, and unduly hasten the passage of food[1] but partially digested and absorbed. The end which popular hygiene attempts to effect by the retention of bran in breadstuffs can be better attained by other means. Thus the nutritive salts of food so frequently lost in ordinary methods of preparation are readily restored by the concentration of the liquor in which meats and vegetables are cooked, into a soup stock, as is practised in almost every French kitchen. Again, the various fresh green vegetables used as salads, yield in abundance these inorganic food-stuffs, the presence of which we have seen is indispensable to normal tissue activity. A further advantage of these and other succulent vegetables lies in the fact that their cellulose, while efficient in giving proper bulk and consistence to the stools, is, as compared with bran scales, soft and unirritating to the digestive tract.

From the facts, old and new, which have been presented, the following deductions appear to us justifiable:

I. The carbohydrates of bran are digested by man to but a slight degree.

II. The nutritive salts of the wheat grain are contained chiefly in the bran, and, therefore, when bread is eaten to the exclusion of other foods, the kinds of bread which contain these elements are the more valuable. When, however, as is usually the case, bread is used as an adjunct to other foods which contain the inorganic nutritive elements, a white bread offers, weight for weight, more available food than does one containing bran.

III. That by far the major portion of the gluten of wheat exists in the central four-fifths of the grain, entirely independent of the cells of the fourth bran layer (the so-called "gluten cells"). Further, that the cells last named, even when thoroughly cooked, are little if at all affected by passage through the digestive tract of the healthy adult.

IV. That in an ordinary mixed diet, the retention of bran in flour is a false economy, as its presence so quickens peristaltic action as to prevent the complete digestion and absorption, not only of the proteids present in the branny food, but also of other food-stuffs ingested at the same time; and,

V. That inasmuch as in the bran of wheat as ordinarily roughly removed, there is adherent a noteworthy amount of the true gluten of the endosperm, any process which in the production of wheaten flour should remove simply the three cortical protective layers of the grain, would yield a flour at once cheaper and more nutritious than that ordinarily used.

[1] An observation worthy of mention in this connection is that of Rubner, who finds that while the presence of much woody fibre and harder cellulose in the intestinal contents induces the passage of stools containing an excess of undigested proteid foods, the absorption of fats under the same conditions is not materially affected.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, May 28, 1884.

THE PRESIDENT, WM. H. WELCH, M.D., IN THE CHAIR.

DR. THEOPHILUS PARVIN presented a

REPORT OF THE OBSETRIC DEPARTMENT OF THE PHILADELPHIA HOSPITAL FOR THE QUARTER ENDING APRIL 30, 1884.

He said: During my term of service at the Hospital seventy-two women were confined; this number, however, includes two cases of premature labor, and one of miscarriage at six months and a half; there was one case of twins. In sixty-nine cases the vertex presented; presentation of a foot, of the breech, and of the shoulder, each occurred once; the presentation in the case of miscarriage is not given. Forty of the seventy-two mothers were primiparæ. Of seventy-three children born, thirty-nine were females, and thirty-four males—a preponderance of female births which is at least remarkable.[1] Fifty-one of the mothers were white, twenty-one black. The average weight of the white children was seven pounds and a little more than two ounces; that of the colored children, seven pounds thirteen ounces and a fifth; there was thus a difference of eleven ounces in favor of the latter. The heaviest child was a white one, its mother a primipara; its weight was nine pounds and twelve ounces. Comparing the difference between white male and female children, it was a little more than one pound;[2] while the corresponding difference in black children was only two ounces and one-fifth. Of course, the number of cases observed is too small to allow a positive conclusion, but it suggests that the difference between the two sexes in the white and in the black races in regard to weight of the new-born is much more marked in the former than in the latter. If the results obtained in these limited observations should be confirmed by more extensive ones, we would have a race distinction which is in perfect correspondence with a known ethnological law.

As to the average weight of the new-born, I may repeat what has been published elsewhere. At my request, Dr. Phillips found, from examination of the Philadelphia

[1] The general relation between female and male births is 100 to 106. Illegitimacy slightly lessens this proportion, that is, increases the number of females born; and this is a factor adding to the number of female births at the Philadelphia Hospital, for illegitimate births are there the more numerous, but still it is not sufficiently potent to entirely reverse the law. This abnormal disparity between male and female births is not a mere accident of the three months, for taking all the births of 1882 and 1883, and adding those of the first quarter of 1884, I find the number is 371, and of these 173 were males, and 198 females. It would be interesting to examine the hospital record for a long series of years, and ascertain if this disparity is the same; and this it is my intention to do.

While referring to the normal relation between male and female births, and the effect of illegitimacy upon it, I may mention the curious contradictions of these laws given by the statistics of Roumania: These show that the proportion of female to male births is 100 to 116, and, further, this proportion is not changed by illegitimacy.

[2] The difference in the weights of white male and female children is greater than it should be from these facts: first, a larger number of female children; second, in two cases of premature labor and in that of twins the children were females, and their weights being small, of course reduced the average.

Hospital records of the white children born there, that this weight was seven pounds four and eight-tenths of an ounce. The number from which this result was obtained was one thousand—five hundred males, and five hundred females. The average weight of the males was seven pounds and seven and nine-tenths of an ounce; while that of the females was seven pounds one ounce and seven-tenths.

The average duration of labor in the black women was very nearly fifteen hours, while in the white it was thirteen hours and twenty-five minutes—showing a difference in favor of the latter of more than an hour and a half, that is, labor is shorter in the white than in the black woman. This result is an unexpected one; nevertheless here again the number of cases is too small to justify a positive conclusion. The duration of labor in white primiparæ was fourteen hours nine minutes; in black, nearly eighteen hours; in white multiparæ, twelve hours forty-two minutes; in black, ten hours sixteen minutes. The duration of the third stage of labor was in the whites twenty-one minutes, and in the colored thirty-three minutes.

And here let me, for the time, at least, lay aside these statistics to consider the conduct of the third stage of labor. The subject invites consideration in this paper by the following facts: One of the colored women failing to expel the placenta within an hour after the birth of her child, the gentleman having charge of the case introduced his hand into the uterus and removed the afterbirth by piecemeal, or at least the greater portion of it. That patient had septicæmia, and infected each of her neighbors; the colored obstetric ward at this time was terribly crowded, the beds so close together that a patient could almost roll from her own bed into the next one.

Shortly after this I was called to a woman in one of the white obstetric wards, who had been delivered of her child three hours before, but the placenta was retained. The patient's pulse was good; there was no hemorrhage, nothing but the simple fact of delay in the third stage of labor. A little friction of the uterus, and compression of its fundus through the abdominal wall, caused the expulsion of the placenta in a few minutes. There was no fragment of the after-birth or of the membranes retained; the genital organs of the patient were not touched either by the *interne* or by myself in this delivery, nevertheless she had septicæmia. Finally, a third patient had the placenta retained for nearly five hours, and then it was expelled. She had septicæmia. These three patients recovered.

In studying the phenomena of placental delivery we find there are three stages, viz.: First, the separation of the placenta from the uterus; second, its extrusion from the uterine cavity after its conversion into a foreign body by its detachment; and, third, its expulsion from the vagina. Delay may occur in any one of these stages, that in the last, of course, being the most easily remedied. The separation of the placenta from the uterus is made by uterine retraction, and probably instead of being marginal in some cases, central in others, is usually general.

A practical question is here presented: Is this separation facilitated by ligating the placental end of the cord; in other words, ought the obstetrician to use two ligatures, or one? The advocates of two ligatures claim that in this case the placenta, being larger, fuller, firmer, cannot so well follow the retraction of the uterus as it can if thin and flexible from the loss of blood, and, therefore, in the former case is more certainly and completely detached. This is doubted by some, denied by others; nevertheless it seems rational. But admitting its truth, it is certain that if a single ligature be used the placenta is smaller, and hence can pass through a smaller uterine orifice; this practice, no matter what its effect upon the first, facilitates the second stage of placental delivery.

After uterine retraction has separated the placenta, uterine contractions expel it into the vagina, while the abdominal muscles, aided, it may be, in some slight measure by the contractions of the vagina, cause its final expulsion.

In the spontaneous discharge of the placenta from the uterus, it does not seem yet settled whether the placenta usually presents the fœtal surface or the margin at the os uteri. The doctrine of Matthews Duncan has probably, for the last few years, been most generally adopted by British and American obstetricians; my own belief is that it is correct—at least in some thirty cases of delivery, taking the method advised by Mr. Duncan to test the presentation, I found in the majority that the placenta descended through the os with its margin presenting. French obstetricians have not accepted Duncan's views; and, indeed, the recent observations of Pinard and others seem to prove that the placenta usually presents by its fœtal surface.

Now a practical lesson from this study of the mechanism of placental delivery is, that adopting the view of Duncan, traction upon the cord—a traction which, of course, is never to be made when the placenta is still attached to the uterus—is mischievous, for it interferes with the normal presentation; but if the normal presentation be that of the fœtal surface, such traction facilitates the second stage of delivery.

The time required for the spontaneous delivery of the placenta, as observed by Kabierski in one hundred cases in the Strasburg Maternity, varied from thirty minutes to twelve hours, as is shown by the following table:

24 times,	. . .	30 minutes.
20 times,	. . .	1 hour.
25 times,	. . .	2 hours.
11 times,	. . .	3 hours.
9 times,	. . .	4 hours.
5 times,	. . .	5 hours.
3 times,	. . .	6 hours.
2 times,	. . .	8 hours.
1 time,	. . .	12 hours.

Few practitioners are willing to trust nature this far, but guard against delay in the delivery of the placenta by following the uterus down with the hand upon the patient's abdomen, according to the expression and the method of the Dublin school, as the fœtus is expelled, thus keeping the hand upon the uterus at least as a sentinel to warn of uterine relaxation, and better still, as a stimulus to, and a reinforcement of, uterine retraction. A general observance of this practice reduces to a minimum cases of post-partum hemorrhage, of delay in the discharge of the placenta, and of hour-glass contraction.

And now, coming to the practical point of more direct interference with the third stage of labor, what circumstances demand it, and how is it to be made?

I believe the teaching of the Philadelphia school has been favorable to early interference—at least such delay as shown by the Strasburg statistics would not have been allowed by her great teachers. Dr. Hodge advised moderate traction upon the cord at the end of half an hour, or of an hour; and Dr. Meigs stated that he never waited for the spontaneous extrusion of the placenta more than an hour and a half, for he always supposed that if it would not take place in one hour, there was little prospect for its taking place in twenty-four hours. Now, with all reverence for the names of these great men, and with, I trust, due personal humility, it seems to me their teaching was wrong. Even moderate traction upon the cord, if the placenta be attached, is liable to do harm, and traction is not necessary to find out whether it is detached. The statistics quoted prove that one cannot make a time-table for nature in regard to placental delivery—she may effect that delivery long after Dr. Meigs's hour has passed.

As long as the placenta is wholly attached, hemorrhage is impossible; the placenta is still a living structure, and one with the uterus; to tear it loose, to detach it directly from the uterus, opens the way for perilous hemorrhage. Not only this, but such artificial detachment is usually incomplete, is liable to injure the uterine tissue, and the operator's hand may be the bearer of septic germs, or these may pass in with the air admitted during the manipulation, and find a congenial soil for their development in fragments of placenta, or blood-clots that are retained in the uterus. Therefore, unless hemorrhage demands immediate interference, the obstetrician refrains from passing his hand into the uterine cavity for the removal of an attached placenta; a completely adherent placenta is not so dangerous as the intrauterine use of the hand for its detachment. I believe, then, that armed expectation is wise in the latter case, only endeavoring, by suitable compression of the uterus with the hand acting through the abdominal wall, to determine or assist that retraction of the organ which is nature's method of separating the placenta. After the detachment of the placenta—a fact which is best learned by feeling a part of the organ with the finger passed into the mouth of the womb—we may, by friction and compression of the uterus, if needed, evoke uterine contractions which will cause its expulsion. Those who believe that the placenta presents its fœtal surface at the os uteri, urge the value of moderate and continuous traction upon the cord, thus assisting the moulding of the mass to the orifice through which it is to come. This conservative view as to the management of so-called retained placenta has been strongly presented by Siredey in his recent work upon puerperal diseases. The common expression, retention of the placenta, means very different conditions, each requiring its appropriate treatment.

Passing now to another topic, the relation of acute infectious diseases to the pregnant, or to the puerperal state, the history of the three months furnishes two cases of measles in pregnancy, and one of scarlet fever in puerperality. A report of the latter will appear in the next number of the *American Journal of the Medical Sciences*, and, therefore, is not presented here. In both the cases of measles the eruption did not appear until after labor, but in each the interval was so short that the disease was present in pregnancy. In one case the disease had no evident effect upon pregnancy, and the puerperal period was normal. But in the other I believe premature labor was caused by the disease, for though no accurate or definite information could be had from the mother as to when the pregnancy began—she was half idiotic—the child was small, feeble, and imperfectly developed. Abortion or premature labor is the result in the majority of cases when measles occur in pregnancy. The second patient had septicæmia, but even with this complication, and though quite ill, made a perfect recovery.

Puerperal temperatures is a subject of importance to which brief reference will now be made. I have here a temperature chart made by Drs. Phillips and Randall, from the charts of twelve women in whom puerperal convalescence was undisturbed; the chart includes eight days of the puerperal period. The highest temperature was on the fifth day, and then it was only 98⅘°.

Temperature record from two daily averages of twelve cases of normal recovery from labor. The first temperature is that of a woman delivered within the preceding twenty-four hours:

Morning,	98.4	98.4	98.2	98.2	98.2	98.4	98.0	98.2
Evening,	98.8	98.8	98.8	98.4	98.9	98.8	98.4	98.4

There were opportunities for observing the influence of apparently trifling causes in producing marked elevations of temperature. Thus one patient, whose condition was normal, insisted upon getting up the fifth day and dressing herself; she did so notwithstanding the remonstrance of the nurse, and her temperature rose to a little above 100°. Either from feeling badly, or possibly from the moral influence of the thermometer, she was willing to return to her bed. Another patient, doing well apparently, save that her temperature was 100°, got up the fourth day; her temperature rose to 103°; she returned to bed; her temperature in a few hours was only 100°, and in two days was normal. In another case an irritant cathartic, or that which proved to be such, the bitartrate of potassium, was given the fifth day, and for a short time the patient's temperature was nearly 105°, but the next day it was normal. On the other hand, the gravity of a case may be much greater than the temperature indicates. Thus in a patient with fatal septicæmia the temperature during the first five days only once rose as high as 101°—a part of the time was only 99°—on the sixth day rose to 102⅘°, on the seventh fell to 101°, and then on the morning of the eighth was 103⅘°; she died that day. In the abstract of a paper by Dr. Angus Macdonald (*British Medical Journal*, May 10), the statement is made that in some of the worst and most rapidly fatal cases of septicæmia, the temperature never rose over 101°, if so high. The explanation given was that the vital centres were attacked with such a quantity of the poison that death occurred before the tissue-changes ending in heat took place. Dr. Macdonald further referred to the important difference in the course of temperature in lymphatic and in phlebitic septicæmia; there being in the former a single rigor with sudden and continuous high temperature, and in the latter a series of successive rigors, followed by corresponding depressions. Siredey

has previously remarked that a temperature chart of a patient having puerperal septicæmia, will readily show whether the disease is the lymphatic or the phlebitic form. When Osiander, at the beginning of the present century, and others since him, described remittent puerperal fever, doubtless they had under observation cases of phlebitic septicæmia. I am sure these sudden and marked declines of temperature have led practitioners into false diagnoses, especially since attention was redirected by two distinguished American physicians to the occurrence of malarial fever in childbed; we would much rather believe a patient had this disorder than septicæmia, and such desire may assist the diagnostic error, an error I know that I have committed, and I have more than once witnessed its commission.

The occurrence of a chill at the onset of septicæmia is by no means a constant phenomenon. While Dr. Macdonald refers to a chill marking the advent of lymphangitis, Siredey regards it as always present in phlebitis, usually but not invariable in lymphangitis; it is multiple in the former, single in the latter. The cases observed at the hospital show that a chill was not constant in septicæmia, even in a fatal form of the disease. While we may in some cases, by the great variations in temperature, be able to diagnose between septicæmic phlebitis and lymphangitis, there are decided oscillations in temperature observed in the latter, though much less than in the former; and beside, some cases present the combined forms, lymphatics and veins alike affected.

The cases of septicæmia were too few, and the discrimination between lymphangitis and phlebitis not always made, to permit me to give a positive opinion; nevertheless, it seems to me probable that in lymphangitis the oscillations of temperature are always such that the thermometer marks a higher degree in the evening; while in phlebitis, the highest temperature occurs quite as often in the morning as in the evening.

Tarnier remarks that momentary elevations of temperature do not generally involve an unfavorable prognosis; but when they are progressive and continuous, especially when the thermometer placed in the axilla goes above $100\frac{4}{10}°$, some complication is to be feared. One of the subjects delivered at the hospital had a slightly subnormal temperature. She was a girl, eighteen years of age, who, three hours after a normal labor, had a temperature of 99°; this fell, so that on the third day it was only 98°, and so continued for a week. During a part of this time her pulse was 56, and even only 48.

The presence of albumen in the urine of the pregnant woman has often, even generally, engaged the attention of obstetricians; but comparatively little concern is usually shown as to its presence during labor, or in the puerperal state. Possibly, it may be quite as important to examine the urine of the lying-in as of the pregnant woman, especially if she has had even slight septicæmia. But first, how frequent is albuminuria in pregnancy? In seventy-two pregnant women albuminuria was found in five. It will be observed that this proportion is very much less than that given by Charpentier,[1] quoting Dumas, who, combining the statistics of several observers, makes the proportion one to five or six. It seems to me, both from hospital statistics and from observations in private practice, this proportion exaggerates the frequency of the accident.

By the albuminuria of labor is understood not only the disorder as occurring during labor, but also that of the two or three days immediately preceding. This is very much more frequent than the albuminuria of pregnancy, but the cases examined with reference to this point were too few to determine the proportion. Seven of the seventy-two women had albuminuria after labor; I think the number was much greater, but some of the women suffering with septicæmia did not have the urine examined until after convalescence, and the results of the examinations made in others were not properly kept, or at least were not placed in my hands. In three of the seven mentioned the albuminuria was slight and transient. In four women convalescing from septicæmia, the urine was found to be albuminous one month after delivery. Two had pus, blood, and hyaline casts in the urine; in a third, no pus, but blood and casts were present in the urine; as to the urine of the fourth, the microscopic appearances were not noted. In regard to two of these patients, I know that the catheter was first used after their being brought from the "fever" to the "convalescent ward," and, therefore, the explanation which Olshausen has suggested of the renal disorder fails in these cases—catheterism had nothing to do with its causation. In explanation of these cases, it is probably better to accept the teaching of Siredey, who regards puerperal nephritis as a constant complication of uterine lymphangitis or phlebitis.

Women may apparently, but not really, recover after pregnancy and labor; especially if there has been septicæmia, is there a liability of renal disorder becoming chronic, and it is only by actual examination of the urine that the integrity of the kidneys can be determined.

Mauriceau compares the pregnant woman just before labor to a ship that has been nine months tossing upon a rough sea, and urges the importance of not letting the ship sink as she enters the port of childbed. It is not less the duty of the obstetrician to know that the ship has not suffered such damage on the ocean or in the port, that she is unfit, without important repairs, to run the risk of another voyage.

Sugar in the urine of pregnant and of nursing women was first shown to occur by Blot in 1856. Differences of opinion hold as to the constancy of its presence in the conditions stated, as to its source and as to its character. Macdonald found it in each of thirty-five cases whose urine was examined, and, therefore, regards it as present in all cases at some time or other of the puerperium. But neither Kleinwächter nor Spiegelberg refers to it as always present. In the examinations made daily of the urine of fifty women at the hospital (these examinations began a few days before and continued seven days after labor), four women had sugar in the urine before labor, and six after labor, one of the six being also one of the four. In this woman the sugar was constantly and largely present up to eight weeks after delivery; she had remarkably well-developed mammary glands, and a most abundant secretion of milk. In this case Blot's suggested test for a good

[1] Traité des Accouchements.

nurse—to wit, the quantity of sugar contained in the urine—would have proved true, so far as abundance of milk was concerned.

It has been shown that abrupt suppression of nursing causes the appearance of sugar in the urine; thus it is commonly observed in mammary abscess.

The fact that removal of the mammary glands in an inferior animal recently delivered, causes disappearance of sugar from the urine, proves that it is incorrect to call the cases in which sugar is found in the urine in pregnancy or childbed, cases of glycosuria, but rather of lactosuria, unless we attach only the literal meaning to the first word in the compound glycosuria. Spiegelberg refers to the condition as an absorption diabetes; and this seems the opinion of most authorities. Tarnier, however, regards as very plausible the hypothesis that the sugar eliminated by the kidneys was sugar made, very probably, by the liver in view of the lacteal secretion, and which was not utilized in consequence of the momentary suppression of this function; further, he thinks new researches necessary, in addition to those of Hofmeister and others, to determine the question as to whether this sugar is glucose or lactose.

Whenever there is an exact correspondence between the milk supply and the demand, the former not being in excess of the latter, it is probable sugar will not be found in the urine; I think, therefore, that the experience of Macdonald—showing saccharine urine in all cases of lying-in women—is not the law.

An interesting case of secondary puerperal hemorrhage occurred—interesting as to its etiology, and instructive as to the means by which it was finally arrested.

The following is the history as given by Dr. Voorhees, the *interne* who had charge of the patient:

A. A., German, single, primipara; varicose condition of veins of lower limbs, this condition disappearing after labor. Labor at full term, March 5, 1884, lasting a little over twelve hours. Her condition was perfectly satisfactory up to the evening of the eleventh day after confinement; on that day she was transferred to the convalescent ward, and then saw the out-door agent as to keeping the father of her child in prison for refusing support. She was greatly distressed by this interview, and at 4.30 the next morning hemorrhage began. Digital examination showed that the blood came from the uterus; the os was high up, flabby, and full of clots; the uterus was as large as if delivery had just occurred, and was soft and relaxed. Ergot was given; the child applied to the breast; the uterus was emptied of its clots, and friction used to stimulate contraction, but the bleeding still continued. Ice was then used to the abdomen, and in the vagina; the bleeding was not stopped. Hot water was then freely thrown into the uterus and the result was prompt and satisfactory. The patient made a good recovery. Although the uterine discharges were carefully examined, at no time was there any organized material found, nothing in the least indicating that this hemorrhage was caused, for example, by the retention of a placental fragment.

Those who have read Dr. Fordyce Barker's admirable lectures upon puerperal diseases, will remember the graphic description of a case of secondary hemorrhage the second day of lying-in, caused by an emotional cause, and in what perilous condition the poor woman was for some days. So too in the hospital case we have an example of hemorrhage from a psychical case. Believe or doubt as we may, say what we will, there are at times in medical practice just such sudden, startling, and strong proclamations of something more than flesh and blood in this human nature, telling us that the coarse material may be prostrated through the finer spiritual, the psychical assert its power over the physical.

Further, as to this case, the great value of hot-water injections for the arrest of uterine hemorrhage never had a more striking illustration.

The final subject presented to you is that of uterine rupture. In reflecting upon the history of my three months' service, no event occurred in my duties to these unfortunate women—women often worthy of the profoundest pity as the victims of misfortune, and of man's perfidy—which causes me greater sorrow in silence or in recital than a case in which the uterus was ruptured in consequence of a shoulder presentation, a case which ended in death the eighth day after delivery. Yet I would fail in duty to my profession that has been so good, so generous to me, if I did not make the case fully known. The patient was a well-formed healthy multipara; she had been in labor nearly twelve hours when I first saw her, the left shoulder presenting. Ether was immediately given until she was thoroughly under its anæsthetic effect; and then, without violence, nay, with great ease, I passed two fingers behind the right knee, brought the foot down, and turning and delivery were effected in a few minutes; the placenta followed almost immediately; the child, quite a large one, was dead. The patient came out from the anæsthesia satisfactorily; her pulse was good; there was no complaint, no shock, no great hemorrhage. Yet that woman had a ruptured womb, the tear beginning at the os uteri on the right side, involving the cervix and the lower part of the body of the uterus, this condition being made known by the post-mortem. If it be thought I ought to have known this accident at the time of delivery, I can only say that like ignorance happened to Dubois, to Hervieux, to Tarnier, and others—the first revelation of the uterine rent being made at the post-mortem; these silent tears of the womb are, as Hervieux has suggested, probably more frequent than generally thought. No, my self-reproach is not in this, but in not having made myself, or by another, an examination during pregnancy, so that the abnormal presentation could have been corrected, if not then, at least early in labor. But let this pass. The great practical lesson to be drawn from the accident is not only the importance of an early rectification of a malpresentation, but also an appreciation of the danger of rupture of the uterus, and how this accident occurs. A drawing which was shown gives the position occupied by the child, and also and especially gives the change in form and thickness of the two cavities of the uterus, which, as so admirably described by Bandl, are formed when nature is unable to overcome the obstacle to labor found in such case. The one cavity is formed by the body of the uterus, and its walls become thicker and stronger; the other, by the cervix, and its walls grow thinner—become indeed so attenuated and weak that a very slight additional strain causes a tear at some point; that strain may come from a uterine contraction, or solely from the introduction of the finger: and thus peril from action, peril from delay must be

before the obstetrician's mind when called to a case of neglected shoulder presentation.

Of course, had I seen this patient an hour or two earlier, the event might have been different. The pressure of the presenting part had been so severe that a slough of the vesico-vaginal wall occurred, and the patient, had she recovered, would have required an operation for the resulting urinary fistula; I have thought that possibly the uterine rent was in part the result of a slough also; but be this as it may, there was not the slightest indications given at the post-mortem that any hemorrhage into the abdominal cavity had taken place.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Special Meeting, June 6, 1884.

THE VICE-PRESIDENT, DR. B. F. BAER, IN THE CHAIR.

DR. GOODELL gave the following history of a

CASE OF HYSTERECTOMY.

The woman was unmarried, aged 47. Her monthly fluxes began to be free in 1867. A year ago they became so exhausting that she could not pursue her trade as a seamstress. On April 30th, she consulted Dr. Goodell, who found the whole abdomen filled with multiple fibroids. The cervix had disappeared and the os uteri lay so high up that it was not possible to introduce the sound. The operation was performed at the hospital of the University of Pennsylvania on May 22d. One outgrowth as large as the two fists contained a cavity filled with cheesy matter, and was so adherent to the abdominal wall and intestines as to need the knife for its release. It was possibly the right ovary, but he was by no means certain. Kœberlé's wire clamp was passed around what corresponded to the neck of the womb, but it was as large as his arm above the elbow. The woman's recovery thus far has been uninterrupted. The temperature reached 100° but once. The clamp fell off on the 16th day, leaving a very deep, funnel-shaped pit. He had intended to exhibit the specimen, but it was too bulky to carry, and also had become quite offensive. In this case, had he been able to reach the ovaries or to have discovered them, he would have removed them in preference to performing hysterectomy; but the firm adhesions prevented the rotation or the lifting up of the tumor, hence the ovaries were inaccessible. Sometimes even when the uterine fibroid can be lifted out of the wound and the ovaries reached, these organs are so imbedded in the fibroid, or so drawn out in ribbon-form on the surface of the tumor, as to make their complete removal impossible. When, however, the ovaries can be removed with safety the operation is a most promising one, as he could attest from several most successful cases.

DR. W. T. TAYLOR reported the following case of

PARTIAL PLACENTA PRÆVIA.

Mrs. S., an English woman, aged 46 years, the mother of ten children, came to see him in December, 1883, in consequence of abdominal pains, headache, and vertigo, with a suppression of her menses, which she attributed to a "change of life," as she had been irregular for a year past. She also had numbness with tingling in the hands and feet, and had not been so affected in any former pregnancy. Consequently she would not believe in her condition until some weeks later, when she quickened. In the month of February last she had enlargement of the veins of the legs, with œdema of the feet and ankles, for which she took occasional doses of potassium bromide with a solution of cream of tartar (one ounce to the pint of water). By this treatment she was temporarily relieved.

On March 27th, she had abdominal pains and a profuse hemorrhage, which saturated her clothing and greatly alarmed her. On examination he found the os uteri high up and slightly open. Although the hemorrhage diminished, yet the pains would recur at intervals, and he fully expected labor would soon begin. Under the use of equal parts of wine of ergot and solution of sulphate of morphia, she began to get easier, and in a few days was out of bed and able to resume her household duties; feeling more comfortable, as the enlarged veins were smaller, her feet and ankles had diminished in size, and the headache gone entirely. I told her that nature had come to her relief and bled her without my ordering it.

Feeling satisfied that this was a case of placenta prævia, and that there was no immediate danger, I concluded the most prudent course was to let nature alone and wait until labor began. She had no more trouble until May 10th, when she passed a large clot of blood and complained of slight pains in the abdomen, these occurred occasionally for two days, when the membranes ruptured, and a sudden gush of water, followed by a flow of blood, indicated that labor had begun. On examination, I discovered within the os a spongy, ragged, bleeding mass of tissue, which was recognized as the placenta; with each pain the flow of blood increased as the cervix dilated. Sweeping my index finger around within the mouth of the womb, as far as I could reach, to detach the placenta from the uterine walls and assist the first stage of labor, I felt the fœtal head beyond.

To arrest the bleeding, which, if it continued, would exhaust the mother and destroy the child, I plugged the vagina completely with strips of old muslin, well saturated with lard, and waited patiently for the os to dilate and the head to advance, giving at the same time occasional doses of quinine and wine of ergot as a tonic and stimulant. In about an hour the advancing head had expelled a part of my tampon and on removing the remainder I found that the bleeding had ceased and the vertex was presenting in the left occipito-posterior position. Auscultation revealed a feeble fœtal circulation, but as the pelvis was roomy and my patient somewhat exhausted, I gave her freely of milk punch until her pulse became stronger, which it did in half an hour, when, as the head had ceased to advance, I applied the forceps and delivered her of a medium-sized girl, which in á few minutes began to cry with some vigor, contrary to my expectations, for I had told them it would probably be dead. Its vitality had been preserved by the adhering part of the placenta, which then came away quite easily. A teaspoonful of fluid extract of ergot contracted the womb firmly. My patient was weak for several days, but under the use of tonics with nourishing food, she soon recovered her usual strength.

DR. A. H. SMITH remarked that this case being partial and without profuse hemorrhage, could have been best carried through by rupturing the membranes and

bringing down the head, which would have stopped the hemorrhage as soon as it engaged in the superior strait. Dr. Smith asked the question: Under what circumstances are we warranted in interfering? If the hemorrhage is alarming and the patient exhausted, she is in a poor condition to bear interference, and, on the other hand, we have no right to interfere if there is no pain or hemorrhage. To interfere by manipulation is very dangerous, unless the uterine contractions are rapid and effective after labor once begins. The position of the child should be carefully and accurately determined by external manipulation before interference becomes necessary, so as to know where to seek the feet, if turning becomes imperative. When the placenta prævia is complete, dilatation of the os causes a terrific hemorrhage, the blood streams from the patient like water from a hydrant, or a small fire-plug, and death comes very quickly. Only perfect knowledge of the condition of things, and the position of the child will enable the physician to avert the doom. Now, as to the tampon. I would not use it. It hides the hemorrhage, which may be going on profusely behind it as was so vividly described by Dr. Goodell, in his paper on "Concealed Accidental Hemorrhage of the Gravid Uterus," in vol. 2 of the *American Journal of Obstetries*, in which he showed that the woman might bleed to death without one drop of blood escaping externally. The tampon conceals the hemorrhage without necessarily preventing it, and while it remains in place one hand of the physician should be constantly on the patient's pulse to note instantly any failure of the heart; while the other should be on her abdomen to note any changes in size of the uterus, or position of the fœtus. In Dr. Taylor's case the treatment was beyond criticism, because the result has been happy.

DR. GOODELL agreed with Dr. Smith that placenta prævia is the most formidable complication in obstetrics. No general rule can be made applicable to the treatment of all cases. In partial ones, the membranes should be ruptured and the head brought down. It must always be borne in mind that in these cases the implantation of the placenta has caused increased vascularity and thickness of the cervical walls; they are easily ruptured, and if torn bleed profusely. There is greater danger of septicæmia from absorption of decomposing lochial discharges when passing over this surface, if it is torn. He well remembered one case which he attended years ago in consultation with Dr. Augustin Fish, since deceased, in which, in consequence of what he now considers undue haste, lacerations of the cervix occurred and, although the labor terminated happily, septicæmia set in a few days later and resulted fatally. It would have been better in that case to tampon. When the placenta is not central there is very little danger—there is some. The tampon may be used, but the pulse must be constantly watched and frequent abdominal palpation should be made. He had been struck with the method practised by Dr. Ellwood Wilson more than twenty years ago. It consisted in gentle digital dilatation of the os; introducing first one finger then two, and so on; as soon as sufficient space was obtained he gave ergot, made podalic version and delivered. Very few practitioners advise that method. Dr. Goodell had not met with many cases, and the one spoken of above was the only fatal one. He has used Barnes's dilators, taxis, strength, and courage, and has tried to adapt his treatment to the indications of each particular case.

DR. W. H. PARISH thought the tampon was not used as frequently now as it was a few years ago, either in the form of Barnes's dilators, or the vaginal plugs. Under similar circumstances he would probably do as Dr. Taylor did. Partial placenta prævia is not very dangerous, but in complete the hemorrhage is excessive. In one case he had tamponed for several hours when, the os being dilated, he etherized and rapidly delivered a living child. The mother was in imminent danger of death from hemorrhage. The abdominal aorta was compressed, ice was used to the cervix, but without success. The hemorrhage was controlled by the application of a cloth wet with Monsel's solution to the denuded cervical and uterine surface.

DR. TAYLOR has used the tampon in several cases of partial placenta prævia and in numerous cases of abortion, and has never yet had bleeding to go on behind it. The line of treatment practised in this case has always proved satisfactory as regards results.

DR. GOODELL remarked that the womb at term was large, and concealed hemorrhage might be free enough to cause death, but there was no such danger in an abortion at two or three months.

DR. B. F. BAER exhibited a specimen of

SUBMUCOUS AND INTERSTITIAL UTERINE FIBROID,

and read the following report of the case: Mrs. G., æt. 51 years, married, four children. Her first child was born after she had reached her thirtieth year, and the last one when she was thirty-eight, thirteen years ago. Her labors were very severe. Several years ago she began to lose large quantities of blood with her catamenial periods and to suffer severely with labor-like pains. This continued with increasing quantity and severity until the cause was removed. Two years ago she had so great a flooding that it was thought for weeks that she would succumb. She gradually recovered from the immediate effects of the hemorrhage, but has been losing flesh and strength ever since. Moreover, as soon as she would recover a sufficient amount of strength to support it, a severe metrorrhagia would recur. Recently she had rarely been free from bleeding and a profuse nonfetid watery discharge.

At the request of my friend, Dr. Fred. C. Seiberling, the family physician, I met him at the home of the patient, at New Tripoli, Lehigh County, Penna. When I saw her for the first time, she had a sallow, jaundiced and anæmic looking surface, was somewhat emaciated, but did not have the characteristic cachectic appearance of carcinoma. Her pulse was 120, and not strong. As she was too weak and excited to permit of a thorough examination without it, ether was at once administered by Dr. J. W. Seiberling, when the following condition was revealed by physical exploration: The upper portion of the vagina was occupied and distended by the cervix uteri, which was stretched and expanded over a firm rounded mass which presented at the os; the latter was dilated to about the size of a silver dollar, and the body which presented resembled very much in size and shape the head of a seven months' fœtus. Bimanual examination showed the uterus to be as large as at the end of the sixth month of gestation and rather

symmetrically developed, but it was quite firm and resisting, if not hard. The sound could not be introduced for the following reason: On the right side the tumor was firmly attached to the cervical wall all the way to the external os, and on the left almost to the same extent, though here I was able to pass the sound and finger to the depth of about an inch. I confirmed Dr. Seiberling's diagnosis of submucous fibroid, and thought, from the size of the uterine globe as outlined by abdominal palpation, that the tumor had also a deep interstitial attachment or *nidus*. I advised an attempt at enucleation of the growth as the only means of saving the life of the patient, and, with the assistance of Drs. F. C. Seiberling and W. K. Kistler, I proceeded with the operation. I was at a loss at first to explain the close connection which the tumor had with the cervical walls, a connection so intimate that it seemed in part to grow from that organ, but the history of the growth of the tumor was against that idea; the patient had been under close observation at least four years, during most of which time the cervix was free from disease. There had been no evidence of abnormal growth in the cervix until six months before the date of operation; about that time the tumor was detected at the internal os. I thought that the close connection with the cervical wall might have been due to adhesive inflammation, and acting on that theory I began my operation by trying to separate the adhesions, but I soon found that I had made a mistake and that I was dissecting up the tissues of the cervical wall. I then concluded it must be the capsule of the tumor which had been stripped off by the growth as it was made to advance towards the external os by contractions of the uterus, and this view was confirmed; for when I had removed the tumor, the capsule hung as a curtain from the edge of the external os. After vainly endeavoring to deliver the tumor by traction, I cut directly into it with scissors, dividing the mass into two portions. I then introduced Thomas's spoon-saw into the cavity, and with it and my fingers I tore the growth from its nest in the fundus and sides of the uterus, removing it piecemeal. Very little hemorrhage occurred during the operation, which occupied fully an hour and a half. After trimming the ragged edges of the capsule from around the os, I injected the cavity with vinegar and packed it full of sponges saturated with the same excellent antiseptic and hæmostatic. A gr. ss morphia suppository was placed in the rectum, the patient removed to her bed and surrounded by bottles of hot water. She reacted nicely, and in the evening ten grains of quinine were given. On the next day the sponges were removed, the cavity irrigated with carbolized water and repacked as before. Under the care of Dr. Seiberling the patient has recovered without an untoward symptom. The tumor probably weighed three pounds.

STATE MEDICAL SOCIETY OF WISCONSIN.

Thirty-eighth Annual Session, held at Milwaukee, June 3, 4, and 5, 1884.

(Specially reported for THE MEDICAL NEWS.)

THE State Medical Society of Wisconsin, held its Thirty-eighth annual session in Milwaukee, June 3 to 5 ultimo, the attendance being good and the spirit of the meeting excellent.

One evening was wholly devoted to clinical work, with exhibition of cases, specimens, etc., and demonstrations of work, proving one of the most profitable features of the session.

Several of the papers which were presented were thoroughly discussed, among them one by Dr. Brett on the *Treatment of Fractures of the Lower Extremity*, and another by Dr. Ladd on *Conservative Treatment of Injuries of the Hand*. An active and profitable discussion was also aroused by the *Report on Pathology*, in which the writer, Dr. Steele, took the ground that there is not yet sufficient reason for the conclusion that the bacillus is the sole and only cause of tuberculosis, holding that long-continued clinical observation by many careful and accurate men, has shown that there may be other causes efficient to produce tuberculous disease, citing especially those occupations in which dust is constantly inhaled. While conceding to Koch profound ability and genius, and acknowledging that the tubercle-bacilli will produce tuberculosis, he believed that it has not yet been demonstrated satisfactorily that tuberculosis cannot be produced by other causes and contended that the clinical evidence that it may be so caused is too strong to be overthrown without further evidence and experiment.

These views were vigorously opposed by Dr. Senn, who held that the causal connection of the bacillus with tuberculosis was as thoroughly proved as any fact in clinical medicine can be, and that tuberculosis wherever found is invariably produced by specific germs—that the presence of this bacillus is not only the sole cause, but also the most reliable diagnostic criterion.

Dr. Epley introduced a resolution concerning the relations of medical men to courts of justice as expert witnesses, and a committee was appointed to consider this question and to report what changes in the law are needful to secure reasonable compensation for witnesses summoned to give testimony solely as experts.

Papers were read on *Acute Dysentery*, *Uterine Fibroids*, *Inversion of the Uterus*, *Anthrax*, *Alcohol*, *New Remedies*, *Lithotrity*, etc.

Twenty-two new members were admitted to the Society. Its next meeting will be held in Milwaukee.

THE OFFICERS FOR THE ENSUING YEAR:

President.—Dr. E. W. Bartlett, of Milwaukee.

First Vice-President.—Dr. S. L. Marston, of Fond du Lac.

Second Vice-President.—Dr. G. M. Steele, of Oshkosh.

Permanent Secretary and Treasurer.—Dr. J. T. Reeve, of Appleton.

Censors.—Drs. J. K. Bartlett, N. Senn, Wm. Thorndike.

NEWS ITEMS.

WASHINGTON.

(*From our Special Correspondent.*)

RECENT LEGISLATION.—The following bills affecting the public health have become laws: To establish a bureau of animal industry; prevent the exportation of diseased cattle; and provide for the suppression and extirpation of pleuro-pneumonia and other contagious diseases among domestic animals. The following were

incorporated in the Sundry Civil Apppropriations Bill: To authorize the President, in case of threatened or actual epidemics, to use the unexpended balance of appropriation made by the Act of August 7, 1882, and March 3, 1883, in aid of State and local boards of health, or otherwise, in his discretion, in preventing and suppressing the spread of the same, and maintaining quarantines at points of danger; to prevent the admission to the Government Hospital for the Insane of inmates of the Soldiers' Home who are now, or may hereafter become insane; to provide for the appointment of a scientific commission, which may, in the name of the United States Government, conduct a National Conference of Electricians in Philadelphia in the autumn of 1884; to authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science and for other purposes.

The following proposed legislation failed: To provide for the inspection of meats intended for exportation, and to prohibit the importation of adulterated articles of food and drink, and to authorize the President to prohibit importation in certain cases; House bill proposing that the use of distilled spirits be restricted to scientific, mechanical, and medicinal purposes; House bill to purchase the Seaman's Retreat Hospital and grounds for marine-hospital purposes; House bill to reënact the Quarantine Act of June, 1879 (which expired by limitation), giving the National Board of Health certain powers and assigning certain duties to it—reported adversely. A provision in the Sundry Civil Bill, with Senate amendments, appropriating $25,000 for the National Board of Health, and to carry on certain investigations, was stricken out in Conference Committee.

NEW ORLEANS.

(From our Special Correspondent.)

THE NEW ORLEANS MEDICAL AND SURGICAL JOURNAL has been reorganized, so far as the editorial department is concerned. Three of the old corps retire, and the remaining two unite with eight others to form the New Orleans Medical Publishing Association. Those who have undertaken this work are active and well-informed young physicians, who promise a good journal.

THE JOINT CONFERENCE OF THE BOARDS OF HEALTH OF THE GULF STATES AND OF TENNESSEE was held here some two weeks ago. This was a plan of the new President of the New Orleans Board to establish harmony and concert of action between the various Boards of the Mississippi Valley and the cotton States. The order of business included discussion of: 1. Maritime quarantine; 2. Coöperation between States; 3. Quarantine and commerce; 4. Non-intercourse; 5. Period of detention; 6. Treatment of infected and non-infected vessels; 7. Disinfection; 8. Legislation; and 9. Inter-State and local quarantine. The session lasted three days, and the discussions apparently resulted in harmony. Under the Louisiana law, *detention* is the declared principle of quarantine as at present administered. The limit is fixed at forty days, and our new president detains all tabooed vessels for this period. His object in thus enforcing the law is to encourage legislation changing the law from detention merely to scientific disinfection.

In this connection we quote from his address to the Board, April 24, 1884, "There are those, and I announce myself as of their number, who hold that it is possible, and experience abundantly justifies the declaration, that yellow fever may be called into activity in New Orleans without recent importation, or importation at all, as far as we are able to decide." If it is endemic, of course all quarantine is unnecessary. But I believe Dr. Holt thinks yellow fever may also be imported. Consequently, his forty days' term is to starve out this invasion wing of the enemy's forces and prevent their combination with indigenous allies. Quite a number of competent medical observers believe with Dr. Holt that yellow fever may be of *de novo* origin in New Orleans. This belief rests upon the unassailable fact that many outbreaks have occurred in regard to which importation could not be established. These circumstances so often attend outbreaks of all infectious maladies as to suggest as the most easy explanation the endemic origin as characteristic of this class of disease.

THE TULANE BILL, merging the various departments of the University of Louisiana, including the medical department, into an institution to be called the Tulane University, has almost passed the Legislature. It will still have to be voted on by the people as an amendment to the Constitution, but its immediate effects will be to put the Tulane administrators in charge of the various departments. Changes will doubtless be made in the courses of study as well as the methods of teaching, which, with the munificent endowment, will place the University of Louisiana in the front rank of institutions of learning which are well endowed and well systematized.

THE TEMPERATURE has been peculiarly low in New Orleans, both absolutely and especially as compared with the other cities and towns of this district. No good explanation of this fact has been given, except that the city is so thoroughly surrounded by water, including the overflowed district just across the river. Malarial fevers are unusually few in number, but smallpox still claims about ten a week. Alarmists recall the fact that 1878 was a counterpart of this year in so far as the temperature and rainfall (the latter excessive now) are concerned, and, therefore, yellow fever is unavoidable. Intestinal disorders are everywhere rife, and many children are dying with cholera infantum. The city is not very cleanly, and these daily rains prevent the sun from drying the filthy gutters, masses of garbage, and unclean yards of the lower classes. This is a matter of much importance in sanitation in this city. Remember, in the first place, the river is higher than the city, and, therefore, we must drain from the river to the lake; and, in the second place, the fall from the river to the lake, a distance of from five to seven miles, is only ten or twelve feet. Underground sewers are inadmissible; we, therefore, drain by open gutters. Sewer gas is thus unknown to us, but it is impossible to flush all the gutters, and those not flushed become long lines of stagnant putridity.

THE MORTALITY figures for the week ending June 28th was as follows: white males, 63; white females, 47; colored males, 42; colored females, 38; total, 190. This is an annual death-rate of over forty per thousand of population.

CHOLERA.—A dispatch from Toulon dated July 7th, states there were nine deaths from cholera during the past twenty-four hours and that the cemeteries are kept open at night to allow speedy burials. A Marseilles dispatch of same date gives sixteen deaths from cholera during twenty-four hours last past, and that twenty cases had been taken to the hospital. The Consul at Calcutta reports one hundred and fifteen deaths from cholera at that place during the two weeks ending May 24th.

Mail matter from France is to be overhauled in the British post-offices and stowed in a separate part of mail ships bound to the United States: whether this separation is sufficient guaranty to prevent the introduction of cholera is to be left to the health officers of United States ports, who may require its disinfection if they see proper to do so.

REPORTED CHOLERA IN NEW YORK.—A reported case of "true" Asiatic cholera was heralded by one of the morning papers of Washington on Monday last. It turned out to be a case of "stomach-ache," with cramps, and the patient was convalescent the next day.

YELLOW FEVER.—One death from yellow fever is reported at Pernambuco by the consul at that place, for the week ending June 7th, and three deaths at Santiago de Cuba for the same period.

Thirteen deaths from this disease are reported by the consul at Rio for the two weeks ending May 31st.

Reports from Ship Island, Sapelo, and Cape Charles quarantine stations indicate a healthy condition of affairs at those stations, with no yellow fever cases in hospital.

THE JUNIATA VALLEY MEDICAL ASSOCIATION will hold its annual reunion at Cresson, on the Allegheny Mountains, on Tuesday, July 15, 1884. The Association cordially invites all members of County Societies to participate in its doings.

A FAREWELL BANQUET was given to Drs. S. C. Busey, D. W. Prentiss, W. W. Johnston, and J. S. Billings, at the Arlington Hotel, Washington, on June 28, by the Washington Obstetrical and Gynecological Society, on the occasion of the departure of these gentlemen for Europe to attend the Copenhagen International Medical Congress.

M. PASTEUR has received a gold medal, from the Central Society for the Improvement of the Canine Race, for his researches in hydrophobia.

AN EXCURSION TO THE LEPER DISTRICT.—After the session of the International Congress is over, on August 17, it is proposed to organize an excursion to Bergen and Norway, where leprosy is prevalent. The excursion will last about fifteen days, and will be directed by Dr. Armäner Hansen. Those desiring to participate should write to Dr. Haslund, Chairman of the Committee on Dermatology, at Copenhagen, before the middle of July.

SEVENTH RIBERI PRIZE.—The subject for the seventh Riberi Prize, of 20,000 lire, is: "Embryological Researches, particularly as regards the Anatomy, Physiology, and Pathology of Man." Manuscripts must be written in Italian, French, or Latin, and must be presented by December 31, 1886.

OBITUARY RECORD.—ALEXANDER TWEEDIE, M.D., F.R.S., died on May 30th, at the age of ninety. Dr. Tweedie was born in Edinburgh in 1794. In 1809 he commenced his medical studies at the University of Edinburgh, and in 1815 took his degree of M.D. In 1817 he became a member of the Edinburgh College of Surgery, and was then elected one of the two house surgeons to the Edinburgh Royal Infirmary, Robert Liston being the other. In 1820 he moved to London, and in 1822 was admitted a Licentiate of the College of Physicians. He became a Fellow of the College in 1833, and was Lumleian Lecturer in 1858 and 1859. In 1824 he was appointed Physician to the London Fever Hospital, which position he filled for thirty-eight years.

NOTES AND QUERIES.

PEPTONIZED MILK IN SUMMER DIARRHŒA OF INFANTS.

To the Editor of THE MEDICAL NEWS.

SIR: The report of my paper on the "Summer Diarrhœa of Infants," published in the NEWS of to-day, is full and more accurate than I expected; since it was read rapidly and with many omissions through want of time, but there is one error, which, as it relates to the important matter of feeding infants, I wish to correct. The report reads: "Of this peptonized cow's milk, one part to three parts of water should be used for a child of one month," etc.

The dilution here recommended is for milk not peptonized. Peptonized milk does not in my opinion require any further dilution than that employed in the peptonizing process. In the institutions with which I am connected, and in my private practice, I have not recommended any additional dilution even for the youngest infant.

Yours truly,

J. LEWIS SMITH, M.D.

NEW YORK, July 5, 1884.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 1 TO JULY 7, 1884.

PROMOTIONS TO DATE FROM JULY 2, 1884.

GLOVER PERIN, to be Assistant Surgeon-General, with rank of Colonel.

ANDREW K. SMITH, to be Surgeon, with rank of Lieutenant-Colonel.

PASSMORE MIDDLETON, to be Surgeon, with rank of Major.

MIDDLETON, J. V. D., *Major and Surgeon.*—Ordered to relieve Surgeon B. E. Fryer from duty as Post Surgeon, Fort Leavenworth, Kansas, on or before July 1st.—*Par. 5, S. O. 133, Headquarters Department of Missouri*, June 28, 1884.

GIRARD, J. B., *Captain and Assistant Surgeon.*—Ordered to relieve Surgeon W. E. Waters from duty as Post Surgeon Plattsburg Barracks, Plattsburg. N. Y. SURGEON WATERS, upon being relieved, is directed to return to his proper station (Madison Barracks, N. Y.).—*Par. 3, S. O. 131, Headquarters Department of the East*, June 30, 1884,

BENHAM, R. B., *First Lieutenant and Assistant Surgeon.*—From Department of Dakota to Department of Texas.

GORGAS, WM. C., *First Lieutenant and Assistant Surgeon.*—From Department of Texas to Department of Dakota.—*Par. 8, S. O. 150, A. G. O.*, June 28, 1884.

BIRMINGNAM, H. P., *First Lieutenant and Assistant Surgeon.*—From Fort Bayard, New Mexico, to Fort Bliss, Texas.—*Par. 3, S. O. 137, Headquarters Department of Missouri*, July 3, 1884.

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